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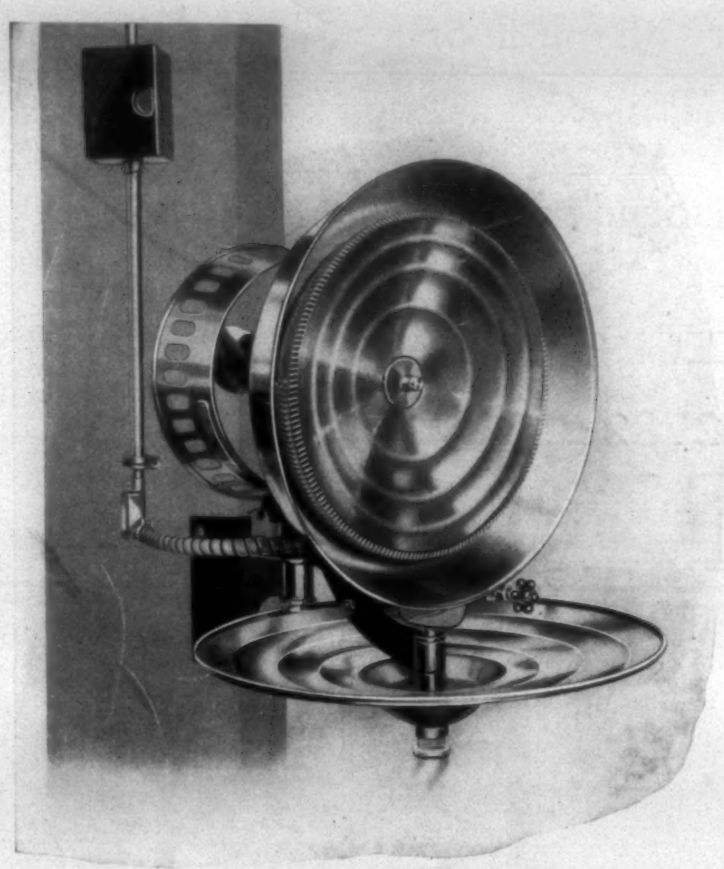
SOUTHERN
TEXTILE BULLETIN

VOL. 30 CHARLOTTE, N. C., THURSDAY, APRIL 15, 1926 NUMBER 7



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A NEW Franklin Process Plant at Chattanooga, Tenn., which offers prompt, efficient commission yarn dyeing service to all manufacturers within shipping distance. This new plant, with a capacity of 30,000 pounds per week, has been located about one mile from the center of the city in proximity of two large mercerizing plants with a view to giving quick deliveries of dyed mercerized yarn to the hosiery trade of Tennessee and vicinity. (The hosiery mills in this territory have in the past obtained dyed mercerized yarn in large quantities from the Southern Franklin Process Company of Greenville, S. C.)

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As in all other Franklin Process plants, all yarn will be dyed in the wound form. The dyed yarn will be delivered to the manufacturers in the convenient Franklin package, or, if desired, it will be rewound to cones or paper tubes.

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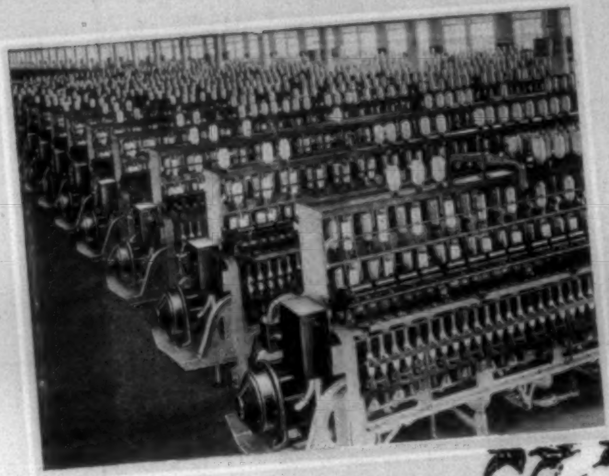

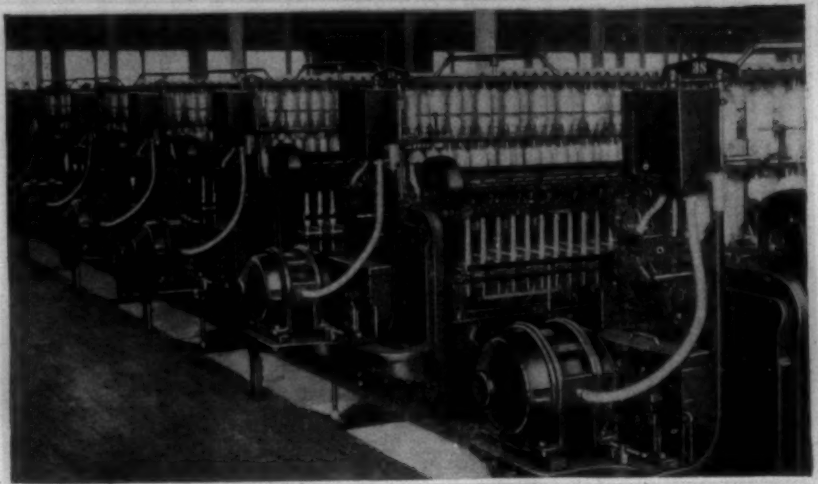

Where Constant

The spinning process is, in many respects, the most important step in the manufacture of textile fabrics. If the yarn isn't uniform—the finest looms and finishing machinery in the country could not produce a perfect fabric.

The yarn can not be uniform unless the frames are operated at a *uniform speed.* This one fact alone justifies the use of G-E Motors.

The difference in production of frames individually driven by G-E Motors as compared with mechanical drive shows from 5 to 10 per cent increase—and the *quality* of the yarn produced is *more uniform,* frequently commanding a higher price in the market.

Belt-driven spinning frames, especially shafting drive, are subjected to variations in output. Belt tensions are constantly changing, due to stretch, wear, varying conditions of

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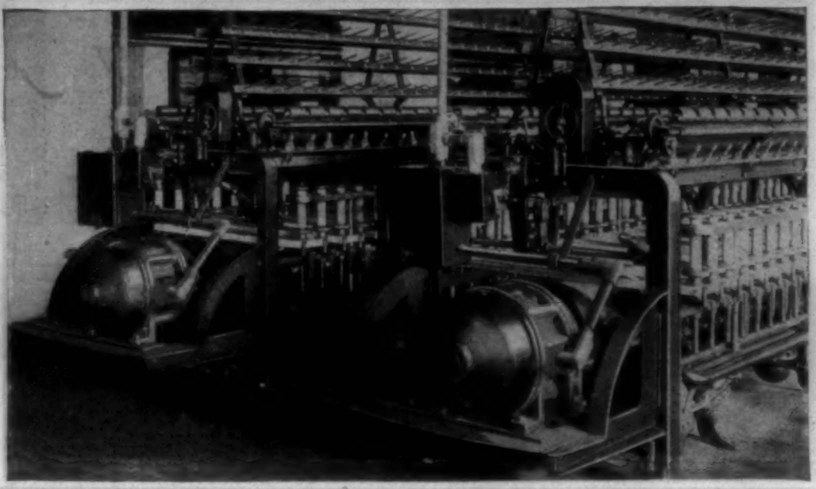

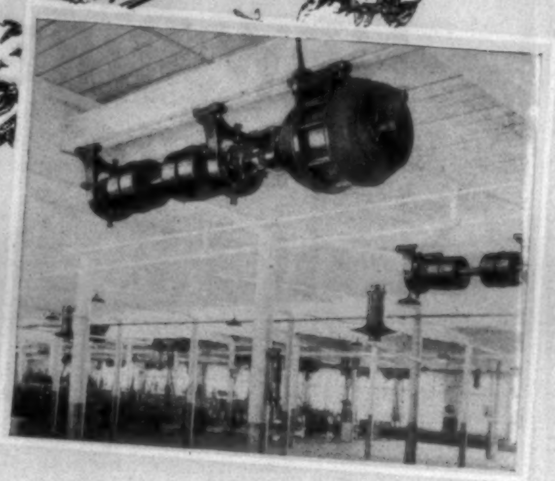

Speed is Essential

temperature and humidity—and the resulting belt slip makes uniform speed impossible.

In new mills, G-E Motors should be applied individually to the spinning frames as the design of the building can be made to conform easily to this type of equipment. The motors are mounted on brackets at the ends of the frames, and connected to the cylinder shafts by either chain or gearing. This insures *positive and uniform speed.* Motor brackets have been standardized by the cotton machinery manufacturers.

To meet the requirements for the individual drive of spinning frames, a complete line of special G-E Motors are ready for work. These motors are available in sizes from 5 H.P. to 15 H.P., in several speeds, and for all standard voltages. A suitable G-E Control device can be furnished for each motor.

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SOUTHERN
TEXTILE BULLETIN

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VOL. 30 CHARLOTTE, N. C., THURSDAY, APRIL 15, 1926 NUMBER 7

The Story of Cotton

On account of its very interesting observations relative to the early history of cotton and cotton manufacturing, we are printing material copied from a small book, published about 1870, in London, Eng., by the Society for Promoting Christian Knowledge. As the book was not copyrighted and is now evidently out of print, we feel at liberty to give its contents to our readers, many of whom will be interested in the early history of the industry.

CHAPTER I.

The Dress of Our Ancestors.

To every animal that walks the earth clothing sufficient for warmth and needful protection has been afforded by a beneficent Creator; to every animal except one, and he the master of all the rest. Coats of skins were indeed bestowed by God upon our fallen parents when first, in consequence of their own sin, their eyes were opened to perceive their need of such a covering; but ever since that time man has had to work for his clothing as well as for his daily bread. God has indeed scattered upon the surface of the earth a variety of substances capable of being formed and fashioned into garments, but it is required of man to exercise his powers of mind and body in the forming and the fashioning. Imposed at first as a punishment, this task has brought a blessing with it. It has exercised man's ingenuity and skill; it has trained him to habits of industry. The manufacture of clothing is a mark of civilization. The countries in which little clothing is worn, and that little of the simplest character, are those in which the faculties of man are least developed. He thinks of nothing there but the satisfying of his mere animal wants, and indolence governs him completely.

Although the skins and furs of animals have always formed a part of the apparel of men and women, especially in cold climates, yet in almost every part of the world it consists chiefly of some sort of texture of twisted threads woven or interlaced together. These threads are principally formed from the four great raw materials which furnish clothing to the world. They are drawn from the warm coat of the sheep, the web of the silk-worm, the fibres of flax stalks, or the fleece of the marvelous wool-bearing shrub which forms the subject of this little book. Of these four substances, two belong to the animal, two to the vegetable kingdom. Wool, flax, and cotton, having short slender filaments, must be spun into threads before they can be woven into cloth; but as to silk, the delicate threads spun by the worm need only be twisted together and made thick and strong enough for the loom.

These materials for the dress of His children were first placed by our Heavenly Father's hand in different parts of the earth. Flax is indigenous to Egypt. The sheep is a native of the mountainous ranges of Asia. The silkworm was given to China and remained within the limits of that empire till A. D. 552, while the cotton-plant grows freely in India and America.

When first we read of our British ancestors, they seem to have been as ill supplied with clothing materials as they were ignorant of the arts of spinning and weaving. Most of them, as we know, were satisfied with dyeing their skins blue by applying the juice of wood to them, and the checked woolen mantles which their princes wore were brought from Gaul. In this barbarous condition Julius Cæsar found our island when he invaded it nearly nineteen hundred years ago. When the Romans deprived the warlike Britons of their liberty they taught them, by way of recompense, the arts of civilized life; taught them how to spin and weave not only wool, but the fibres of hemp and flax. Large flocks of sheep were now to be seen on British ground, and though a good deal of their wool was exported in a raw state and brought back in the form of cloth, yet we read of at least one imperial manufactory at that time in Britain. It was at Winchester, and both woolen and linen cloth were made there to supply the Roman army.

On the departure of the Romans from Britain, Angeles, Saxons, Jutes, and Danes, laid waste the country by their invasions, and swept away for a time all the arts of peaceful life. At last, however, the intruders settled down in the land they had ravaged and became its inhabitants. They learned to live in it as a civilized nation, they became Christians. The spinning-wheel and the loom were now to be seen again in our land, and spinning became the chief employment of English women even of the highest rank. We learn this from many little circumstances. Property was said to go or not to go "by the spindle," according as it descended in the female line or not. Alfred the Great, most memorable of our Saxon kings, called the women of his family "the spindle side," to mark them off from "the spear side," that is the men. The spindle was as constantly in the hands of a woman of that day as the spear in the hands of her father, brother, or husband. But it was naturally supposed that unmarried women had more time to devote to the spinning-wheels than wives and mothers who had the care of a family on their hands, and hence the former received the title of "spinsters," which they bear to this day.

Of spinning-wheels two sorts were in use in almost every house from those early Saxon times till less than a hundred years ago; the two are described in Wordsworth's poem called Michael. He says of Michael's mother, the wife of a Cumberland shepherd—

> "She was a woman of a stirring life,
> Whose heart was in her house—two wheels she had
> Of antique form, this large for spinning wool,
> That small for flax; and if one wheel had rest
> It was because the other was at work."

We seldom realize the constant employment which generation after generation of English women thus found by their own fireside, an employment which they have not long given up. The poet Wordsworth, who only died A. D. 1850, praises a lady for again turning her spinning-wheel "which had slept with dust o'erspread," and resuming a task "once dear to household virtues." In another sonnet he laments the disappearance of the spinning-wheel from English homes as if it had but lately vanished—

> "Grief, thou hast lost an ever ready friend
> Now that the cottage spinning-wheel is mute,
> And Care a comforter that best could suit
> Her forward mood and softliest reprehend;
> And Love, a charmer's voice, that used to lend
> More efficaciously than ought that flows
> From harp or lute, kind influence to compose
> The throbbing pulse, else troubled without end."

Very likely the fireside spinning-wheel lingered on the latest in remote corners of England, such as the North and West. A lady, who is still living, once related to the writer of this little volume that, when she went as a bride to the home of her father-in-law, a country clergyman in Northumberland, she found spinning the regular evening employment of the servants. The daughters of the family used to go in turn to read to the maids while they were busy at their wheels, and the young bride, who begged to take her turn, greatly enjoyed the novelty of her task, the quaint old kitchen, the spinning-wheels in constant motion, and the pleasure her reading afforded. Fifty years ago it was still the general custom among families in the North of England to spin flax in the winter for house and table linen, and every spring weavers would go from house to house carrying damask patterns for their customers to choose from. Then they would take the yarn to weave in their own cottages and bleach in the meadows, bringing it back next year in the form of damask and linen. The writer has herself seen an old spinning-wheel standing in its long accustomed place by a cottage hearth. This was in the year 1841, at Bovey Tracy, a Devonshire village. It was then at rest, but the good dame who owned it had not forgotten its use, for she kindly set the wheel in motion and showed her visitors how thread was spun.

Bound up as the spinning-wheel was with hours of quiet home employment, we can well believe that many an English matron and maiden did regard it as a friend. But there always will be young folk who love play better than work, and such no doubt looked upon it in a very different light. And old people may always be found who are ready to make excuses for the idle girls and to take their share of work upon themselves. It is therefore no matter of surprise that in almost every country of Europe an old legend has been told of a maiden who failed to do her share of spinning, and yet escaped being punished for her idleness. One of the Scotch versions of this tale runs as follows:

There was once a young damsel fair and sweet, yet not without one fault. She ran away from her spinning-wheel whenever she possibly could, and roamed in the green fields and meadows. Her mother used to be heartily vexed with these idle ways, for in those good old days no lassie had a chance of being married unless she could spin well, and in spinning as in everything else, nothing but practice makes perfect.

At last one spring morning the goodwoman gave her daughter seven bundles of flax, and told her that she would take no excuse, they were to be spun into yarn in three days. The girl saw that her mother was in earnest, so she really tried her best, but her little untrained fingers made small progress. At the end of the second day the poor child had hardly anything to show, so she went to bed and cried herself to sleep.

The next morning was so bright and sunny she did not know how to stay in doors and sit down to work. Besides it seemed of no use. It was impossible for her to spin all that flax. She turned from her wheel and went out into the warm sunshine. As she wandered in the fields all glistening with dew, she meet an ancient dame called Habetrot, strange to look at but kind of heart. She noticed the maiden's heavy eyes and asked what her trouble was. The maiden told her of her hard task and how she had done her best, but it was all in vain. The old dame's heart was touched. "Go and fetch me the flax," she said, "and let me see if I cannot get it spun before night."

Now Habetrot lived with a company of spinsters like herself in a cave underground. All were pale and haggard with incessant work, and "lang-lipped" from the habit they had of constantly putting their fingers to their lips to moisten the yarn they were spinning. But they were kind creatures, and they all worked hard and spun the girl's flax that day as she sat on a tussock of grass at the mouth of the cave. Late in the evening she took it home after warmly thanking her strange friends. Her mother had already gone to bed, so she laid her seven skeins of yarn upon the table and followed her with a lighter heart than she had known the day before.

When her mother came down the next evening and saw the beautiful shining thread, seven hanks all alike and perfectly smooth and even, she clapped her hands and ran out of doors crying out for joy that her idle little girl had really done some excellent spinning at last. A country laird who chanced to be riding by, stopped and asked the reason of her surprise and delight. She told him her story. He dismounted and went into the cottage, looked at the yarn and asked to see the spinner. It seems he was looking out for a wife and was determined to find one who could spin well; so he wooed and won the maiden and they were married.

The young wife had only one care. She dreaded what would happen when her husband found out the truth in the matter of the spinning. But Habetrot undertook to make everything right. "Bring your bridegroom to visit the Spinster's cave," she said, "that will be enough." She brought him, and when he saw the pale faces and the long lips, and understood from Habetrot that constant spinning had been the cause of all, he protested that his little wife should never touch a spinning-wheel again—and he kept his word.

But to return to our subject, the clothing of our ancestors. The meadows and downs of England have for many generations been well stocked with sheep, but the wool of our flocks, the flax grown in our own and neighboring countries, would ill suffice for the clothing of our present population. Far, far away, in a climate very different from our own, are the storehouses where lie the materials for a very large portion of our wearing apparel. These storehouses are the cotton fields of America and Asia.

CHAPTER II.

The Wool-Bearing Shrub.

Had we but eyes to see things aright, we should be lost in wonder at the fatherly care with which the gifts of God are dispensed so as best to meet the needs of man. He who in our colder climate spread upon the back of the sheep a fleece the weight and warmth of which the animal could not endure in summer, and which he can therefore well spare for our use, has caused a wool-bearing shrub to spring up in the Torrid Zone. This shrub supplies in rich profusion a material of dress especially suited to the inhabitants of those regions; though in these later ages of the world we have also found it very useful in more temperate climates. And it is remarkable that while the tropical heat changes the soft wool of the sheep into a harsh and scanty hair, which is perfectly unfit for clothing purposes, it cherishes and ripens the vegetable wool which is to take its place in that part of the world; and the slender porous fibres of this vegetable wool are as perfectly suited for garments to be worn in hot countries as are the warmer and heavier fibres of animal wool for use in colder climates.

This strange wool-bearing plant is of the mallow tribe. It is therefore akin to the marshmallow which adorns our salt marshes with its pretty blossoms and furnishes a remedy for coughs and colds, and to the ground-mallow, so common in waste places and by the road side. Botanists call it gossypium, from which name no doubt is derived the word gossamer, which we apply to floating light threads. The word cotton is plainly formed from the Arabic gotn or kotyn, signifying soft. Another name formerly given to the vegetable fleece was bombast. This word was in use before our ancestors were skillful enough to weave the cotton wool which was brought to them from the East in the merchant ships of Venice and Genoa. What they did not want for candle-wicks, they employed in stuffing and wadding their doublets and others articles of dress. We never call cotton-wool bombast now, we have quite left off doing so, but the word still keeps the secondary and figurative use which it then acquired. To this day, when a man speaks or writes in inflated language, which sounds big and grand but has no real weight or power, when he uses great swelling words of vanity, we say it is all mere bombast.

The first home of the woolbearing plant is thought to have been India, from whence it spread round the world. It thrives best in the Torrid Zone, though not directly under the Equator. We find it also in many favoured districts beyond the tropics. There are many different species of the cotton-plant, but all are alike in this respect: they one and all have seed-pods which, on ripening, open with an elastic spring, divide into several portions, and disclose the soft fleecy down which surrounds the seeds. First comes the herbaceous cotton, with its smooth leaves and pretty yellow flowers, an annual of a foot and a half in height. We find this variety on the shores and islands of the Mediterranean Sea. Three centuries ago it was cultivated with success in the south of France, but it has quite disappeared now from that country. In Italy it has been common at least since the eleventh century, and the soil and climate of the extreme south of that peninsula suit it extremely well. We read that in the middle ages the ladies of that district used to occupy themselves with spinning thread from its soft fleece and knitting it into stockings. These stockings were highly prized, and a guinea used to be given for a pair of them—a curious contrast to the price of stockings at the present day!

In the hotter climate and richer soil of Hindostan a variety of the cotton plant grows ten feet high. It is marked by the seeds and a purple spot at the base of every petal of its yellow blossoms. This variety grows wild in moist places in India. It is cultivated there and in China, as well as in the neighbouring islands. Some of the plants bear cotton of a yellowish hue, from which the cloth called nankeen, formerly so much used in dress, is made. Nankeen takes its name form the Chinese seaport from whence it was shipped for Europe. One species of Indian cotton has the downy filaments wrapped so tightly round the seeds that no machinery has ever been found to loosen them, and it requires a good deal of patience to separate them with the fingers. No one cares to undertake this tedious work except the nuns of Tranquebar, and so this variety is called nuns' cotton or religious cotton.

Then there is the real tree cotton which grows some twenty feet high, with a strong woody stem, palm-shaped leaves, and flowers of a dull red colour. Tree cotton grows in India and in the islands of Celebes, but it is not commonly used in manufactures. The Hindoos count it a sacred plant, and make no further use of it than to weave from its soft down an exceedingly fine muslin for turbans; only sacred personages of the highest caste are allowed to wear them.

If we turn to America we find three principal varieties of the wool-bearing plant. There is the celebrated "long-sea-island," the choicest of its kind, whose downy fleece is without a rival for the length of its staple, its strength, and its silkiness. This species grows on the small islands that fringe the sea-coast of Georgia from Charleston to Savannah, and also on the coast. These islands, once overshadowed with trees, were in old times the abode of a certain tribe of the Red Indians of the West, who lived by fishing rather than by hunting. Their soil is now made up of an accumulation of sea-shells mixed with decayed vegetation and sand. In this peculiar soil, and among the ocean-breezes, the sea-island cotton thrives and has attained its pre-eminence.

A hardy and productive, though less beatiful variety, grows freely on the hills of Georgia and in the inland part of the Southern States. It bears green seeds wrapped in cotton of short staple. which is known in the market as upland or bowed cotton. This last name tells of the old method by which the seeds used to be separated from the cotton. This was effected by spreading out a mass of the wool and striking it again and again with a bow having loose strings—a tedious process and no longer in use, but formerly practised in America as well as in India, where the Hindoos learnt it from their Mahometan conquerors.

Peruvian cotton appears to be a native of the new world, for it was flourishing both in Peru and Mexico when Pizarro and Cortez first invaded those countries.

The growth of the wool-bearing shrub is so free and its produce so abundant that its fleece is by far the cheapest material for clothing. Yet man must bestow a good deal of care and pains upon it, if he would gather this downy fleece in perfection and in full quantity. His winter task must be to plough the land in deep broad furrows and make a small trench at the top of every ridge. In this trench the seeds are sown, commonly by a party of three persons—man, woman, and child. The man makes a hole with a dibble, the woman drops in five or six seeds, the child covers up the hole with earth. It is not possible to use any sort of drilling machine, on account of the lint with which the seeds are furred over. As the plants spring up, the weaker ones are hoed up till only two are left together. Many dangers beset the cotton-plant in the early stages of its growth; late frosts sometimes destroy a whole crop in one night, or swarms of caterpillars or cockchafers devour it; but if it escapes these dangers the plantation present a most beautiful appearance at mid-summer. Rich foliage, something like that of the vine, covers the ground entirely, studded with blossoms of three different hues. When the flower opens it is of a pure bright yellow, and it keeps that colour through the day; at night it changes to a deep crimson, and on the third day it darkens to a rich brown before it falls off and leaves the precious seed-pod, already of a good size.

(To be continued)

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Only with Celanese brand fabrics can these results be secured. Obviously it is important for every progressive manufacturer to familiarize himself with Celanese brand yarn and its many remarkable properties.

Celanese brand yarn is not rayon. It has distinctly different properties. ¶It is highly elastic and remarkably durable; and it has unique hygienic qualities. ¶Dyed with its special SRA dyes, it is fast to sun, soap, salt-water and perspiration. ¶Even in a plain fabric no shiners are ever found when Celanese brand yarn is used.

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In order to be sure that a sulphonated Castor Oil is properly made, so as not to be thrown out of solution by acids or other chemicals, a simple comparative test is very enlightening, as follows:

Take about 10 grams of Monosulfol Oil and 10 —— grams of any competitive oil. Dissolve each of these in 30 grams of water and stir thoroughly. Now add about 10 grams of 28 per cent Acetic Acid and stir in. The Monosulfol solution will remain without change, while the other oil will curdle and separate, floating out free oil to the surface.

This test not only proves the superiority of this oil for use in acid solutions, but is a proof of care and skill in sulphonation. Any oil which will not meet this test is dangerous to use, as it is liable to be affected by many chemical substances which would decompose it and weaken or ruin it for its intended purpose.

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Scientists Seek Fibre Knowledge

THE perfection of artificial silk is a significant contribution of chemical science to the textile industry, says M. R. Bhagwat, M. A., B. S. C. Research Chemist on Cellulose Products, Chemical Engineering Department, Columbia University, in the Daily News Record.

Countless scientists, supported by vast resources, are exploring wide range of organized knowledge, in the eternal quest of new secrets from nature's forces and abundance of raw material.

No field of human endeavor remains untouched by the inquiring and preserving search of trained minds.

The chemist has already discovered and is still investigating a vast number of useful products of coal. "Cellulose" gives him another attractive, yet formidable field for research—for the betterment of mankind.

Cellulose forms the main structural basis of the vegetable kingdom. In nature it is found, in cotton, in its purest form. In wood and other vegetation it is mixed with several organic materials such as lignin, pectin, starch, etc.

Isolation of cellulose from its associates in wood, is accomplished by the well known soda, sulphite and chloride processes. The fibrous material, thus obtained, is known as wood pulp. This is the starting point in the manufacture of paper and allied products.

Cellulose is used in our daily life in a variety of forms. The uses are too many to enumerate. Our forefathers were satisfied to use it for their garments in the form of leaves and barks, they considered it fashionable. As the artistic tastes changed and the knowledge of cellulose fiber advanced, the pattern of the fabric changed accordingly. Thus a variety of "mercerized" and dyed garments came into vogue. At the present time the chemist makes silk stockings and laces from a log of wood.

The preparation of artificial silk was accomplished by some well-established empirical methods. The great impetus toward further research in the realms of cellulose chemistry came during and subsequent to the World War. It may be said that with all its woe and grief, this great struggle of nations did produce something besides wanton destruction. It gave chemistry an opportunity to plunge forward to a development that years of peace time efforts might have failed to bring.

After the return to peace time pursuits, remarkable strides, already made in the fields of destruction, were turned toward ways and means of production and economy.

It was inevitable that many important chemicals should have been discovered during the war and some of them should have been left in a rather crude experimental stage at its end.

It is at this period that both theoretical and applied knowledge came to a common stamping ground, with the consequent result that application took the lead over the theory. It is a very future development of the artificial silk industry.

Organizations possessed of vast capital and guided by large visioned men have long felt the necessity of research endeavors. A few of these corporations have for long years set aside generous sums for purely experimental purposes, irrespective of their immediate fruitful results. But more is needed.

The quest for artificial silk, evidently, dates back to the middle of the nineteenth century; but it was not until about 15 years ago that the commercial product, now known as rayon, was brought to a suitable state of marketable perfection.

At present, the main sources of raw material for cellulose, in the manufacture of rayon, are waste cotton and spruce pulp—preferably made by the sulphite process. Persistent research, however, will doubtless disclose the practicability of using other wood or vegetable fibers as a basis for rayon in the future.

But the chemical research toward this end is in its very infancy. The fibers, derived from bamboo; hemps, jute and a variety of woods, do contain a high percentage of cellulose, which may be found useful in the future. The chemist cannot function independently of other specialists. The day is not far distant when the horticulturist will be called upon to bring his skill into play to stimulate forced growth of the basic ingredients and the economist will have to provide some method of conserving nature's products. Industry squanders nature's products in a surprising manner.

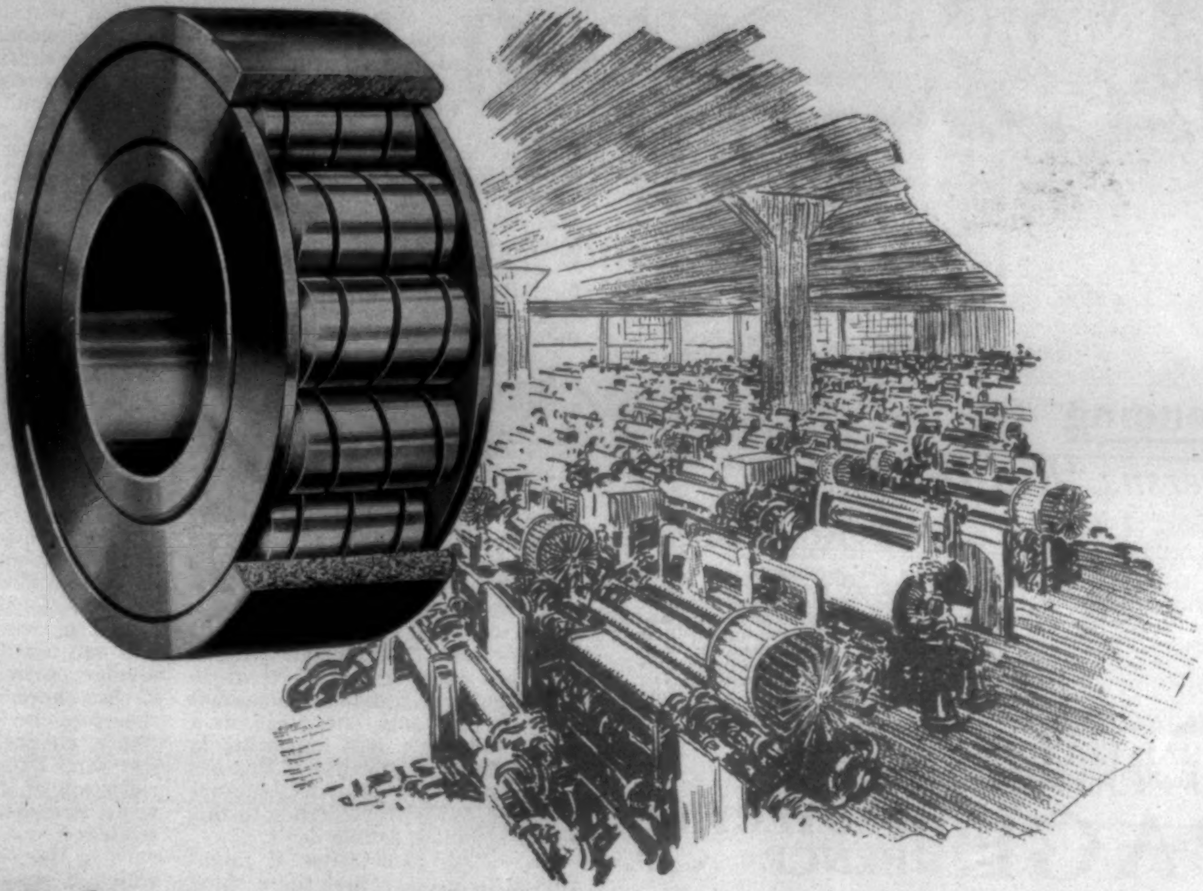
It might indeed be found expedient to establish these artificial silk industries in countries like India, Brazil and other tropical regions, rich in fibrous growths scarcely yet touched by the woodman's axe.

No immediate fear need, therefore, be felt regarding raw material. A famine may occur in far distant time if nothing done to prevent it; but the real problem today is the reluctance of capital to encourage further theoretical experimentation. The chemist cannot survive nor give his best without economic security.

The most popular present medium of manufacturing rayon is the viscose process. Next in importance are the cellulose acetate, cuprammonium and chardonnet processes. In each and a few other processes it is necessary to dissolve pure cellulose or ester into a certain chemical medium and then precipitate it, in the form of fine filaments. They receive a further chemical treatment; are thoroughly washed and then dried. It takes at least two weeks to transform cellulose into rayon.

The chemist, with the cooperation of textile experience, has yet to overcome several of the commercial and mechanical deficiencies in the present processes of manufacturing rayon. Though the chemical composition of cellulose is known and its physical properties have been studied; intrinsic knowledge of the ag-

(Continued on Page 31)



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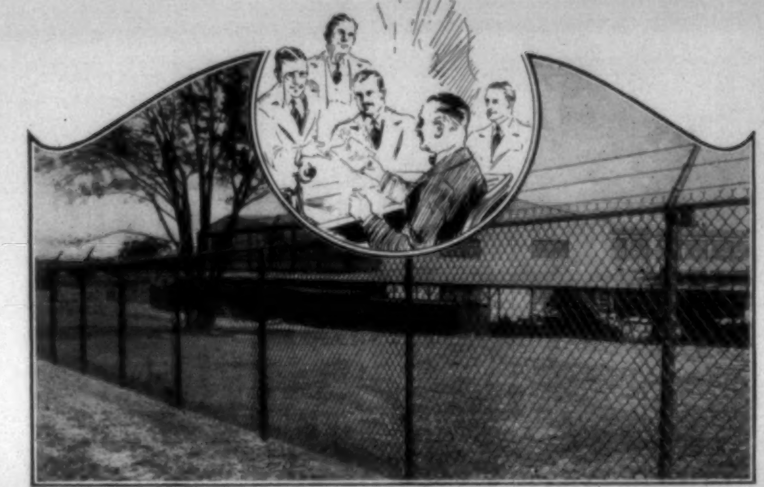

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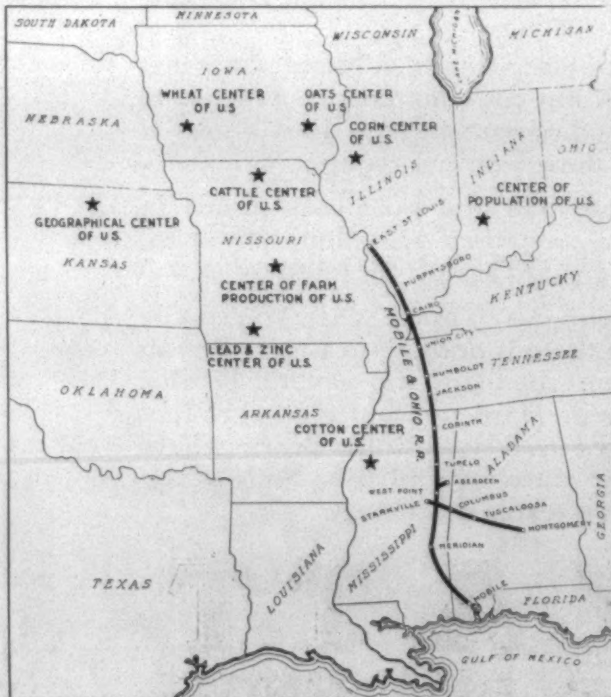

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"Shiners" in Rayon-Filled Fabric

ARTIFICIAL silk, now generally called "Rayon," has, in recent years, become one of the most important textile materials in the industry, and year by year becomes more so, new uses being ever found for it. In woven fabrics it is most extensively used as a filling material, and has a very substantial use for warp, both as a complete warp, as in the case of Baronet satin, and for stripings, as in the case of shirtings. It is not only used in connection with, and in substitution for, silk in the silk trade, but is enormously used by cotton mills in their fabrications.

For many years, the trade has been seriously troubled with certain defects in rayon-filled goods, known as "shiners," that is, when the fabric is looked at in a particular light, shiny streaks will be found in the goods crossways. These are not, as a rule, some odd, individual shiny threads, though these also may be found, but generally occur in bands extending for a few inches, and then there will be no more for a distance, when they will occur. The intervals between such defects will be most variable, and they seem to occur quite at random, sometimes appearing in only one place in a piece, and sometimes appearing in many places. The cause of this has been a puzzle to most manufacturers, and it is with reference to this defect that this article deals.

On casual observation, it might appear to the eye that these shiny streaks extend from side to side in the piece. When very carefully examined, however, it will be found that this is rarely so, and if an individual shiny thread starting at one side is followed up, it will generally be seen that after running for a distance, say half, or three-quarters of the way across the piece, the shininess diminshes, and the thread beyond that is perfectly normal, and no more lustrous than it should be, so that these "shiners" are merely local places, recurring in the thread, throughout the several inches over which the defect will continue, and which, by the way, are often coincident with the amount of cloth which one quill, or bobbin, would weave. Examined carefully under a good sized magnifying glass, it will be seen that these shining threads are under greater tension than the others. This, also, can be clearly demonstrated by making a couple of cuts in the cloth parallel to each other, crossways, so that the warp is cut through, and not the filling. A convenient length for these cuts might be, say, three inches, and about an inch and a quarter apart. If, now, the warp threads in this area are carefully removed by a pair of tweezers, or pulled out by the fingers if need be, one by one, they can all be drawn out until the filling threads alone remain. If these be now stretched out with good firmness, taking care that the cloth at each ned is held exactly parallel, it will be found that when suitably tightened till the shiny threads are smooth and true, the adjacent non-shiny threads will be slacker and will not, in the cloth, show under brilliancy, whereas the light threads show as "shiners."

This will be the case, also, whether goods have been woven with one shuttle, or with two shuttles. If woven with two shuttles, the cross band in which the shiners appear will extend further than when the weaving is done with a single shuttle, although, when woven with a single shuttle, the shiny effect of the band will generally be more accentuated.

The question is, how does this irregularity of tension get into the filling thread in places? Rayon possesses both elasticity and ductility. The difference between these two terms may be seen by a comparison between the stretch put on to a rubber band, and the stretch put on to a copper wire. The rubber band, when stretched, snaps back to its original length; the copper wire, when stretched, does not come back at all. Now, rayon, when stretched a little and when it is done quickly, will spring back pretty well to its original length, but if drawn out substantially, it will only regain, on springing back, a small portion of the amount that it has been stretched, and will therefore be permanently longer. Hence, changes in the thickness of the yarn from stretch, and in its reflection of light, which is greater when stretched out than when not stretched out, may occur in the yarn in the various stages through which it passes.

When the skeins are made up by the manufacturer of the rayon, there is necessarily a difference in stretch in different parts of the skein, and while most of this stretched condition will be regained, some of it will be continuous. If, on unpacking the material from its cases when the shipment is received, the yarn is put at once in winding, these varying tensions have not had time to readjust themselves, and the yarn wound on the bobbins will still possess these inequalities of stretch, and these will continue on, if no opportunity has been afforded to rectify them, into the quills and into the warps, and such eventual contractions of the elongated parts as may occur will take place in the goods after the weaving.

Iis therefore absolutely necessary, for the successful working of this material, and to avoid such difficulties, that every possible step be taken to prevent inequalities of tension, and to remove, or equalize, those which may have been in the yarn when first received. With this end in view, it is desirable (in fact, from the viewpoint of the writer, it is necessary), that the material that is to be wound on one day, should be opened up on the previous day. The skeins should be carefully opened and hung well spread out, on stretching poles, and a parting stick should be placed through the loop of each skein, and the skein be firmly, but not too severely, stretched and straightened by light jerks of the stick. Sometimes it may be found desirable to carefully and lightly rub the part-

(Continued on Page 32)

ARCY—

A Means of Getting The Most Value From a Dollar's Worth of Starch

ARCY is a product used in warp sizing and cloth finishing for converting ordinary thick boiling pearl starch into a soluble form, the solutions of which are transparent and remain fluid at lower temperatures.

"Warp Dressing Service Improves Weaving"

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Manufacture of Fancy Goods

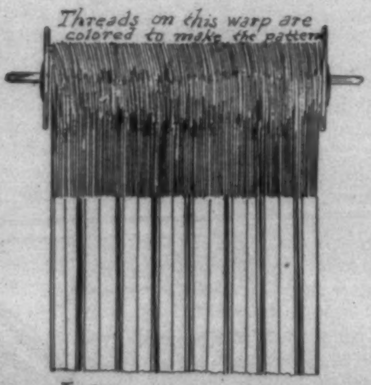
This is the fourth of a series of articles on fancy weaving. The next will appear in an early issue.—Editor.

Fancy Goods Not Entirely a Matter of Fancy Weaving.

The manufacture of fancy textiles in Southern mills, or mills in any part of the country, is not wholly a matter of fancy weaving. There cotton mills in this and other countries that turn out some very fine lines of fancy patterns and a considerable range of cloths with weaving machinery consisting chiefly of plain looms. Then there are mills in which the product is plain although the looms are designed for fancy weaving. The weaving department so far as the particulars of the weave are concerned, but the preparatory divisions also occupy important positions in the making up of the warps for the looms and the finishing divisions in preparing the cloth for the market. Warping, the first operation changes in going from plain warp preparation to fancy warp preparation. The collecting of a body of plain threads together, and stretching and winding them evenly on a warp for longitudinal weaving into plain cloth differs in principle from collecting them for weaving into fancy cloth mostly in color. The most difficult part of the work is in the loom-mounting or pattern designing room. Here the designer, the overseer of weaving, the superintendent or perhaps only the pattern weaver will take a turn at the pattern loom with a view of working out a colorful design that will meet the approval of the fair sex and give an impetus to the dress goods output or other product.

All thread on this warp one color.

A plain cloth woven on a plain loom.


Threads on this warp are colored to make the pattern

A fancy pattern also woven on a plain loom.

A small warping mill is usually a part of the pattern room equipment so that patterns can be made on a small scale with various colors and sizes of yarns for ultimate manufacture into samples for fancy shirtings, window hangings, interior trimmings for automobiles and so on. The pattern loom and the pattern warping machine are essential in any mill intending to produce pattern ranges for the consideration of buyers or for final manufacture in to fabrics for the commercial agencies, because of the ease with which the thread plans can be altered on the creel of the warper and the weave altered on the pattern chains of the loom. Warp threads of certain colors can be replaced with threads of other colors until the requisite color field is obtained so long as the pattern is in process of construction in the pattern room. Once made into permanent warps for the looms, the colors and sizes of yarn are unalterable and must be woven out as they are. The writer recalls instances in which thousands of yards of cloth had to be piece-dyed black, brown, gray or other color for the purpose of making certain colored designs invisible as a result of change of fashion between the time when the patterns were designed and the fabrics ready for the sales organizations.

Warping for Fancy Weaves on the Sectional Plan.

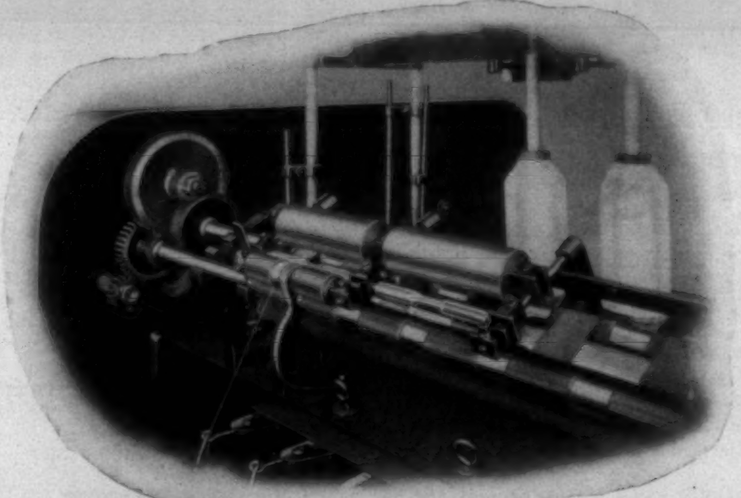
Sectional warping for fancy weaves is somewhat more complicated than sectional warping for simple weaves, due to the multiples of threads of different colors, twists or sizes required for each of the repeats. Each section has to be calculated on the basis of having an equal number of threads and a complete and not a fractional number of patterns so far as is possible.

Half or quarter sections, or fractions of repeats, always cause complications in the weaving. An unevenly proportioned warp means that some sections are to receive more threads than others and an irregularity of texture is very likely to result in the loom. If the goods are coarse and heavy, a few extra threads in some of the sections will not matter very much. But a perceptible difference will develop in the texture of fine goods and therefore uniformity is essential. In beaming for fancy cloths each section shoud receive its full number of repeats of the design unless the conditions are such that this cannot be accomplished. Supposing that the pattern contains 52 ends and is to have 48 threads to an inch in width and reeder in the loom 33 inches wide. This setting would give a warp composed of 3168 threads. This number divided by 52, the number of threads in each pattern, equals 60 patterns in the warp, each pattern being a repeat, and 48 threads over, for it is seldom that the numbers end evenly. The num-

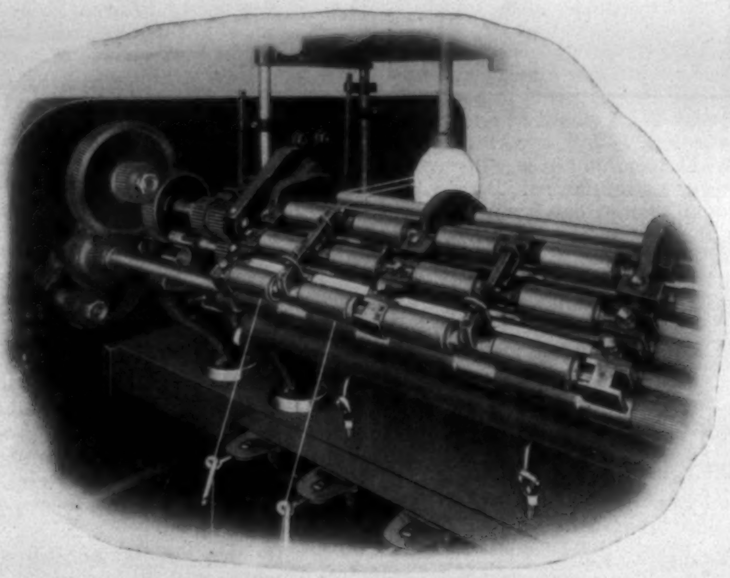
(Continued on Page 34)

SACO-LOWELL

LARGEST MANUFACTURERS OF TEXTILE MACHINERY IN AMERICA



Le Blan-Roth Long Draft Spinning



Saco-Lowell 4-Roll Long Draft Spinning

LONG DRAFT SPINNING

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Practical Discussions By Practical Men

Curtain Cloth Border.

Editor:

I may want to specialize in weaving curtain goods on a few looms. As I understand that very attractive leno border goods sell very well, will you please have your Discussion Department advise me on this.
Curtain.

Labor Cost on Roll Covering.

Editor:

If not asking too much. I would like to ask through this Department this question. I would like for some one who knows roll covering to tell me what would be a reasonable labor cost per 100 rolls, where a shop has enough hands to carry on all parts of the work at the same time? This includes short and long spinning, speeders, slubbers and intermediate. All sheep skin cots. Would be glad to see several answers to this question.
Foreman.

Under Clearers on Steel Rolls.

Editor:

Will you please get these few questions in next issue of Bulletin under Practical Discussions by Practical Men.

Will some one who has had some experience with under clearers on spinning frames with steel rollers, tell me how they manage to keep them all in good working order. How often are they cleaned and what system used in cleaning. What results do you get from them good or bad? What kind of cotton used and the number of the counts spun? Any information you can give thru the Bulletin will be very greatly appreciated.
Under Clearer.

SPINNING CONTEST TO BEGIN MAY 1ST

As recently announced, we will on May 1st begin a prize contest for the best practical article on CAUSES OF BAD SPINNING.

The writer of the best practical article contributed to this contest will receive $25.

The second prize will be $15 and the third prize $10.

We will ask seven practical mill men to act as judges of the contest.

For the purpose of the contest we will assume that the lapper room and card room are running good but the spinning room is running badly.

How many different things could cause the bad running spinning? Which would be the most likely causes?

If you took charge of a spinning room under such circumstances what steps would you take to make the work run good?

We want this contest to bring out the ideas of the best spinners in the South.

After the contest is closed the articles will be printed in book form and for many years will be studied by the young men in the spinning rooms of the South.

The following rules will govern the contest.

Contest Rules.

1. Articles must not be longer than three full columns.
2. Articles must be signed with assumed names but the real name and address of the writer must be known to us.
3. The subject, CAUSES OF BAD SPINNING, will include anything that has a bearing upon the subject. It is to be assumed that the card room is running well but not necessarily making good roving.
4. Articles must be original and articles that include paragraphs or sections copied from other articles on this subject will be thrown out. The contestants and all of our readers will be requested to call our attention to any articles that show evidence of having been copied.
5. Articles will be published by us in the order received and the judges will be instructed that where two are of equal merit the decision shall be given to the one received first. It is therefore advisable to mail articles as early as possible.
6. In mentioning machinery the name of the maker can not be given. This rule will not apply to special machinery or attachments that have no competitors.
7. Articles which are received after May 15, 1926, will not be considered in the contest.
8. The contest will be decided by seven practical men who, acting independently of each other, will read the articles and give us their opinion relative to which is the best and second best. A vote for first place will count one (1) and a vote for second place will count one-half (½).
9. The article receiving the largest number of the judges' votes will be declared the winner and its writer will receive $25.00. The writer of the article which receives the second largest vote will receive $15.00, and of the third best, $10.00.

Answer to Plumb.

Editor:

In answer to Plumb, first I want to say be sure the spindles are in the middle, top and bottom. To level and line the frame, level big head first crossways, stretch line from head beam to foot of beam bring up sampson or lower same, which may call to bring frame level and right, then put line on base rail, line with blocks to each sampson. Now spindles, first above all get two fibric plugs if possible, wood will do, one for bottom one for top, can make out on one plug if fitted to bobbin tight where it will slide up and down. Knock spindles in at bottom, have ring rail lowest possible, then let ring rail to top of your bobbin, get pay roll paper, you will find that is best, cut in small pieces about one inch long, pack one, two or three under base which you think will do, close side of plug to the ring, then lower your rails again, look spindles over, all found out pack them on the open side of your plug at bottom from ring, continue until you have them right. Should you have to leave any of your spindles out of a fraction do so at bottom of ring, but good spindle plumber will get them all.
J. W. B.

Answer to Spinner.

Editor:

I have all my filling frames running without separators on numbers 23.00 to 27.00 filling; 2½" gauge frame; 1⅜" diameter ring; number 2 flange ring; 17½" from steel rolls too spindle base rail; 5½" from steel rolls to guide wire; 1½" from guide wire to tip of bobbin; 10½" from tip of bobbin to spindle base rail. I use square point traveler (narrow.)

I don't think Spinner will be able to run his coarse numbers without separators and I am sure he can not if his rings are larger than 1⅜" diameter. My warp frames are same as filling only 1¾" diameter ring and I can not run them without separators.

If I were Spinner and running his numbers I would not change to a Number 1 flange ring as I have run Number 1 and Number 2 flange and I find a Number 2 flange gives better service on coarse numbers.
Experience.

Answer to Gear.

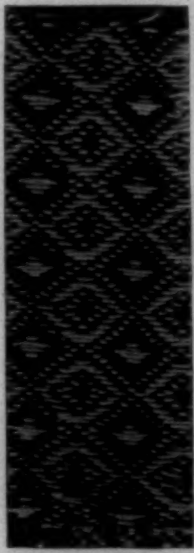
Editor:

A hunting tooth is a term applied to an odd tooth in a gear. When two gears have the same number of teeth, the same teeth mesh together or pair off at each revolution of the gears. Or if a gear has 10 teeth and the gear which meshes with this gear has 20 teeth, the same teeth will pair at every alternate revolution. This sometimes causes what is called channeling. And to prevent this, the 100 toothed gear will be exchanged for an 11 toothed gear in order to break joints as it were. Now, if 20 be divided by 11 the operation will keep on to infinity, 20÷11 can never be divided without a remainder no matter how long the operation continues. This means that the extra tooth in the 10 tooth gear meshes with every tooth in the 20 tooth gear over and over again, and never strikes the same tooth twice in the one revolution of the 20 tooth gear. This extra tooth is therefore called a "hunting tooth."
Knowall.

Answer to Learner.

Editor:

In answer to Learner, regarding the difference between Jacquard and Dobby weaving, will say,, to describe the difference between dobby and jacquard weaving is quite a long story to review. In a brief statement, it may be said that the chief difference is that with the dobby system of weaving, the warp ends are always lifted in groups. That is, a dobby loom ordinarily will have ten (10) to twelve (12) harnesses or 16 harnesses on medium weigh of goods and the warp ends consisting of some 3,000 threads, more or less, must be divided between the total number of harnesses on the loom in groups. Some dobby looms on very fine work, such as silk goods, may have as many as 40 harnesses and 5,000 ends or more.

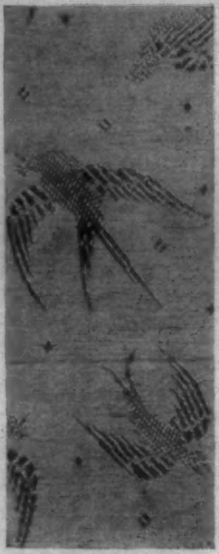


CUT NUMBER ONE
JACQUARD WEAVE

But jacquard weaving is conducted on the principle of being able to control any one warp end by itself as well as also in groups.

Cut Number One (1) shows a typical dobby pattern which can be woven on a 16 harness loom by drawing-in the warp ends straight, or with less harnesses when the system of cross drawing-ing is used.

Cut Number Two (2) shows a typical jacquard pattern. The back ground ends will be lifted in general groups and possibly as in a plain weave, or sateen weave, or possibly as in twills and granite work. But the warp ends and filling will appear only at few intervals to make the bird-like figures on the plain back ground. And this requires that these few ends have each a little harness eye to lift them individually. Thus you have a brief account of the two different systems of weaving. M.



CUT NUMBER TWO
DOBBY WEAVE

Answer to Spinning Without Rings.

Editor:

Yes, yarns can be spun without rings and without ring travelers, and it was spun without these things for many, many years before these things were invented. There are two kinds of machines on which yarns can be spun and which use neither rings nor travelers. One system of machinery is the famous good old-time cap frame and upon which a great deal of worsted yarns are now spun and twisted. The other system of machinery is called mules. These machines are extensively used in England and Eastern United States for making fine yarns, especially fillings numbering finer than 60s. On these machines, the yarn is spun and wound directly upon the bare spindle. There are no bobbins, rings nor travelers. Very few mules are used in the South. History.

Humidity Calculator Patented

United States Patent No. 1,579,706 issued on April 6, 1926 to Wm. B. Hodge, of Charlotte, N. C., and assigned to Parks-Cramer Company, describes the sliding humidity calculator that Parks-Cramer Company has been distributing for the past year or so. This little device is very handy in calculating the relative humidity or the cotton regain, by merely setting two sliding scales to correspond with the reading of the wet and dry bulb thermometers.

In short, it is a very simple mechanical arrangement whereby all complicated references to printed charts are unnecessary, and one of these little scales carried in the pocket enables the humidity to be calculated from the wet and dry bulb thermometer almost instantaneously.

Made at Victor Fair

Greer, S. C.—All is in readiness for the "Made in Victor Exposition" to be held here April 15th, 16th and 17th at the Y. M. C. A. building. In addition to the greatest display of manufactured goods that has ever been seen in this section, there will be shown a complete line of novelties, relics, etc. These with the displays from the schools and various organizations will continue thruout the exposition which will be well worth seeing.

A full and complete program has been arranged and there is not a dull moment from the opening whistle Thursday until Saturday night.

A small admission fee of ten cents will be charged. Much enthusiasm is shown throughout this section in the even and a great crowd is expected.

The following is the program in part:

Thursday—Formal opening by F. D. Still, superintendent of Victor Mill. Music furnished by Greer High School orchestra Thursday night.

Friday, 2 to 6 p. m.—Better Baby contest, conducted by leaders of Greenville county. Friday evening open until 9 p. m. Music by Lyman Concert Band.

Saturday, 2 p. m.—Auto parade. Two twenty p. m., arrival of Andy Gump met at station by group of citizens. 3:30 p. m., baseball. Victor against Lyman. Open evening; music by Haymakers Orchestra. Everybody is invited.

Decline in Mill Stocks.

According to the average of twenty-five active Southern textile mill stocks as compiled by R. S. Dickson & Co., there was a further decline of 40 cents per share bringing the average down from $118.56 of last week just ended. The present average is $4.88 per share higher than as of July 15, 1915, which is the low market for four years.

Trading was more active thruout the week than during the previous week, even in the face of the declining market.

Thread Exports in February.

Washington, D. C.—Domestic exports of cotton yarn sewing thread, crochet, darning and embroidery cotton during February wered valued at $1,128,793, according to figures made public by the Department of Commerce. Shipments to non-contiguous territories during the period were valued at $21,551.

RAYON REEDS

On account of the ever-increasing use of Rayon (artificial silk) by Southern cotton mills, we are making a reed particularly adapted to the Rayon yarns.

Special attention is necessary to the finish on the wire used in these reeds, which finish requires approximately three times the length of time usually given to regular reed wire.

There is, however, absolutely no extra charge for this special finish as we invoice Rayon reeds at our regular standard prices.

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THE STEEL HEDDLE LINE

"Duplex" Loom Harness (complete with Frames and Heddles fully assembled).
Drop Wires (with Nickel Plated, Copper Plated or Plain Finished).
Heddles—Harness Frames—Selvage Harness—Leno Doups—Jacquard Heddles—Lingoes—Improved Loom Reeds—Leno Reeds—Lease Reeds—Beamer Hecks—Combs.

Discuss Regulation of Production

A conference of unusual and far reaching importance is to be held in Spartanburg, S. C., on Friday, April 16 to discuss regulation of production in the cotton goods industry. Decision to hold the conference was reached at the meeting last Friday of the board of governors of the South Carolina Cotton Manufacturers Association. All of the members of the Association are being urged to attend. In addition, a delegation of leading cotton goods commission merchants of New York will attend the meeting to discuss the production question with the mill men. Those who are expected from New York are: W. H. Baldwin, of Woodward, Baldwin & Co., B. H. Borden, of M. C. D. Borden & Sons, Inc.; Edwin Farnham Greene, of Pacific Mills; J. D. Woodside, of Woodside Mills; Ridley Watts, of Ridley Watts & Co.; Gerrish H. Milliken, of Deering, Milliken & Co., and George Walcott, of Hunter Mfg. & Commission Co.

It is expected that the delegation will include many others, and be fully representative of the market..

It is understood that the meeting, which will convene at a luncheon at noon, will be devoted to discussion of the problems of regulating cotton goods production in accordance with demand and preventing the recurrence of such periods of market dullness that is apparent in the textile situation at this time.

Credit Union Establish By Georgia Mill

Atlanta, Ga. — The first credit union to be established at a Georgia cotton mill, and one of the first credit unions of this kind to be established in the South, was organized at the Exposition Cotton Mills here.

A preliminary meeting was held on March 18 at which the credit union plan was explained to leading employees, and it was decided at that time to apply for a charter. This arrived on March 31, and the employees lost no time in getting organized. The name Exposition Cotton Mills Employees' Credit Union was selected for the organization, and out of the 110 employees attending the meeting, 81 subscribed to stock in the credit union. A total of 465 shares of stock at $5.00 a share was subscribed, giving the credit union a start with $2,325. worth of stock taken. This represents an average of $30 per charter member, and is considered a high average.

J. C. Harris, a foreman in the spinning department of the mill, was elected president of the credit union. F. H. Netherland, a buyer, was elected vice-president. C. J. Turner, head booker, was elected secretary and treasurer, Miss Margaret West, cashier for the company, was elected assistant treasurer and Miss Florye Reid, in the time-keeping department, was elected assistant secretary.

Te credit committee selected included J. A. Winterbottom a shipping clerk; R. W. Smith, a second fixer; Henry Kemp, a second hand cloth man; Will Kennington, a machinist, and W. C. Hames, an employee in the roller shop. The supervisory committee included W. H. Hale, an inspector; L. B. Adams, assistant cotton man for the mill, and J. P. Netherland. And the board of directors was composed of J. A. Towns, a machinist; R. L. Freeman, an employee in the carding department; C. L. Clerner, an employee in the weaving department; J. C. Harris, F. H. Netherland, C. J, Turner and P. E. Glenn, secretary and treasurer of Exposition Mills.

The names are mentioned to show how completely the organization has been one of, by and for the employees of the mill. Every department of the mill has a representative either on the board of directors or the two most important committees. And it is a significant fct that only one official of the mill is also an official of the credit union.

The one official is P. E. Gleen—and that is another significant fact. For years Mr. Gleen has been working to improve the condition of employees at the Exposition Mills, and it was largely through his interest and efforts that the credit union was established. While he did not wish to hold any office in the credit union, the employees insisted upon his becoming at least a member of the board of directors.

The feature of the credit union which will be stressed most largely at Exposition Mills will be the savings department. Employees will be encouraged to save a definite amount each week, no matter how small, on the theory that it is not the amount saved but the habit of saving formed that counts.

In addition to the credit union, the Exposition Mills employees have a mutual benefit organization that has proven an outstanding success and a cooperative store that has saved many dollars for its stockholders.

There are now 750 employees at Exposition Mills and it is expected that between 200 and 300 of these will be enrolled in the credit union by the first of May.

Since the organization meeting; 153 members with 639 shares subscribed for have been enrolled.

Georgia's Curb on Child Labor

By A. H. Ulm, in New York Times

GEORGIA, often called a laggard in regulating the employment of children, has just put into effect what its officials call the most comprehensive and rigid child labor law yet enacted in this country. The law was passed largely at the instigation of employers, who joined with reform organizations in shaping its provisions, and whose representatives appeared personally before the Legislature in support of it.

"We took what are regarded as the most stringent regulations enforced by other States. selected those that were applicable to conditions here, wrote them into the bill and, in at least one instance, amplified the regulations beyond what any other State has done," said Hal M. Stanley, Georgia Commissioner of Commerce and Labor, who is charged with the law's enforcement. "This law should remove all reason for future criticism of the State of Georgia in the matter of dealing with the child labor problem."

The law rules against the employment of any person under 14 years of age in any kind of maufacturing establishment. It does not specifically cover employment in stores or street trades, as do the statutes of a few States, but it bars the employment of all persons under 16 " in any place or occupation which the State Board of Health may declare dangerous to life or limb or injurious to the health or morals of such persons." The statute itself specifies many kinds of employment that come within this prohibition.

Only two kinds of employment are excepted from all regulation — domestic and agricultural. The law comprehends and deals with the emloymenpt of persons under 18 in all other occupations.

Age Limits Are Raised.

In factory employments not rated as dangerous persons between 14 and 16 may be employed only under quite rigid regulations. These include authentic establishments of age, ability to read and write the English language and a health officer's certificate of age and physical fitness for the employment. This last must be procured before employment may be given to any one between 16 and 18 years in industrial or dangerous work. No one under 16 may be employed in night work.

The head of the State Labor Department has an inspection force to see that the law is observed. Parents and guardians are held subject to punishment, equally with employers, for permitting children to be employed in violation of the law.

"Certificates are now being issued to persons who qualify for work in trades covered by the law," said Commissioner Stanley at his office in Atlanta recently. "From reports that have been made, I should say that between 2,000 and 4,000 persons between the ages of 14 and 18 will try to qualify under the law for employment. Certificates are required in almost every kind of industrial work.

"The State's compulsory education law operates separately from the child labor laws."

Both of these statutes apply to negroes as well as whites.

Writers Have Exaggerated.

"Child labor conditions in Georgia and the South generally have been much exaggerated by many writers, particularly in recent years," the Commission added. "Our laws were not as rigid as they might have been, but contributory factors caused many children, not covered by the old laws to be excluded from industrial employment, notably in the cotton mills, which have been the supposedly biggest employers of small childrn."

He called atention to the fact that the census of 1920 showed only 468 persons under 14 working in all of the cotton mills of the South. In Georgia there were only 90. The number under 16 thus employed in the South was 5,968, while the corresponding figure for the New England cotton mills was 6,246. The percentage of all cotton mill workers, he said, under 16 in the South was 5.9, against 6 per cent in New England. This proportion, it is believed, has been considerably reduced since 1920 in both sections.

Georgia, like most Southern States, enacted no child labor laws until about twenty years ago. The first ones were so conservative and allowed so many exceptions that their effect was negligible. Georgia strengthened its regulation in 1914, making 14 the minimum age, but still allowing many exceptions. Alabama enacted substantially what has long been the law in Massachusetts. The new Georgia law, although based on the Alabama and Massachusetts statutes, goes further in some respects.

Fear that regulation of child employment would impede the development of the textile indstry in the South caused previous opposition by mill owners. They are no longer of that opinion. The drift of the industry to the South cannot now be accredited to the greater availability of child labor.

Inspect European Bleaching Praises for Delgada Mills

Greenvile, S. C.—"Every pleasure and convenience possible that could be shown a visitor was given me by officials of Bleachers association comprised of approximately 75 plants in England," said R. W. Arrington, superintendent of the Union Bleachery, on his return from a six-weeks trip abroad for inspecting bleaching processes employed in Europe.

Mr. Arrington sailed from New York for Liverpool. From there he went to Manchester. While in England he inspected four of the largest of the 75 plants controlled by the Bleachers Association. His trip also carried him into Germany, France and Holland.

In Frankfort, Germany, he visited one of the world's largest dyeing plants. It covered approximately 30 acres of ground. All kinds of goods were handled in this plant and all processes completed by the same firm.

The trip from London to Rotterdam, Holland, was made by air plane by Mr. Arrington. Due to lengthly negotiations that would have to be entered into before a visitor is allowed to enter the plants in Holland, Mr. Arrington only remained in the country for one day.

Mr. Arrington went from Frankfort, Germany, to Paris and on to Rouen, France. Here he entered three bleaching plants.

"It would be impossible to operate the Union Bleachery on the same basis as are the foreign plants due to the fact that competition is not as keen." Mr. Arrington states. Processes such as starching and blueing three times are only done once by the American plants.

In the belief of Mr. Arrington this condition is due to the fact that all work in America is done for domestic trade and in England, France and Germany practically the entire output of the plants is exported. Trust laws also figure largely into the European conditions.

HOUGHTON

ABOUT "DIGNITUDE"

An incident
by Chas. E. Carpenter,
Near Editor of
The HOUGHTON LINE.

LAST Summer circumstances forced me to have a guest aboard the Franeda, who on the surface was the nearest thing to perfection that I ever had the misfortune to be familiar with. His hair did not even muss when he went in to bathe; the creases remained in his trousers after a day's fishing; his beard seemed to never grow and he never displayed the slightest evidence of hunger, or haste, and his language made Woodrow Wilson sound like a "selling-plater."

I had a substitute cook aboard who had worked for the family for years, who was both black and philosophical. So after my guest had left, I asked the cook what he thought of Mr. Blank. "Ise thinks he am too dignitude; Ise suspecting of dat kind," is what my cook replied.

About four months later the gentleman who introduced the guest, had said guest arrested for swindling him out of $100,000 in a bogus land scheme.

This reminds me that I have never been well swindled but once, and this was done by a chap who wore pointed side whiskers, a frock coat, a top hat and spats, and spoke at the rate of about 10 words per minute. In fact, I suspected that he had scales in his mouth and weighed every word before he let it come out.

In view of these incidents please do not write me, criticising these pages (one would hardly call them ads), as being lacking in dignity.

They are not intended to be dignified. The author is not dignified. Lincoln and Roosevelt were not dignified. We did have some presidents who were. I never liked the dignified ones.

Once when I was a small boy, my Brother and I were visiting our Aunt. Brother was somewhat of a rough neck and proud of it, and he did not have much respect for the good sort of boy. There was a cousin also visiting our Aunt at the same time. So Aunt Margaret said to Brother, "Why don't you be nice and good, like your Cousin Bob?" A look of disgust came over Brother's face, as he replied, "He's not nice and good; that's only manners."

I prefer to present to Houghton's present and prospective customers, Houghton and Houghton products as they are, without trying to cover them with a thin veneer of dignity or manners.

There is no pretense about the Houghton organization and it is not fair to put pretense in our publicity.

Every month or so I publish a book, entitled *The HOUGHTON LINE,* in which I give expression to my private opinions, on things in general. This book is mailed free only to individuals connected with industrial plants, who may request it. Over a half million such individuals have made the request and we are mailing now about 150,000 each issue. There are about 15,000 names per year stricken off of the list due to death, removal and other causes.

All you have to do is to get on *The LINE* mailing list is to send your name, address, the name of the mill with which you are associated and the sort of goods you make—woolen or cotton.

Address:
HOUGHTON LINE CIRCULATION DEPARTMENT
P. O. Box 6913, North Philadelphia, Pa.

Oils and Leathers for the Textile Industry

RODNEY HUNT MACHINE COMPANY

Booklet No. 1119-A

RODNEY HUNT

Silk Reel Machines

Double the capacity
of other types

RODNEY HUNT MACHINE CO.
53 Mill Street, Orange, Mass.

RODNEY HUNT

Frank MOSSBERG Corporation
STEEL BEAM HEADS
Cannot Break, Bend or Warp

Result—first cost is last, no hold-ups in production, no rewinding of yarn.

FRANK MOSSBERG CORPORATION Beam Heads will outlast three of the old cast iron type. This durability alone will make them appeal to you.

Every Beam Head guaranteed.

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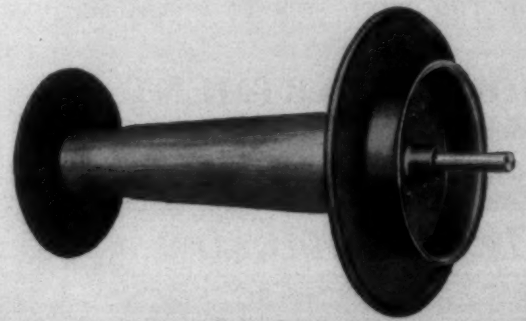
Lamb Street Attleboro, Mass.
ORIGINATORS OF STEEL BEAM HEADS
LOOM—SECTION—ADJUSTABLE—TOPBEAM HEADS
Southern Representative:
Gibbons G. Slaughter, Charlotte, N. C.



Cotton Mill Processes and Calculations

By D. A. Tompkins.

Copy Revised for Third Edition.

(Continued from April 1st)

Baling.

348. Goods are put up in bales of various kinds and sizes to suit the requirements of the purchaser.

If they are baled to go to the converters, the kind and style of bale is not of great consequence, except as a matter of uniformity. Such goods are generally in double cuts 100 to 120 yards, and about 20 pieces to the bale. Goods for domestic consumption are generally in single cuts, 50 to 60 yards and about 20 pieces to the bale. Colored and fancy goods are put up in various ways, according to the custom for any particular style. Some are baled, and some put up in wooden boxes or "cases."

349. The proper way to pack any kind of goods is to lay the pieces on a scale, making note of the number of yards in each piece, until there are as many pieces as are required for the bale. The net weight is then noted, together with the total number of yards. The exact average weight per yard is thus found for each bale. This record governs the operations of the whole mill. It shows each day how well the weights and numbers are regulated throughout.

A piece of gunny cloth is laid in the press, and on this a piece of stout paper. The pieces of cloth are then piled carefully on this. Another piece of paper and another piece of gunny cloth are put over the top of pile and the press run down on it. The paper is arranged to cover the cloth, and the gunny cloth is drawn smoothly over the bale, and the ropes tied on.

The pressure is then relieved and the bale rolled out and the heads sewed up and stenciled with a serial number and any other shipping mark desired.

350. The size, shape and style of bale varies according to whether it is intended for a foreign or domestic market.

Almost any neat looking bale that will hold together passes muster in the domestic markets. But the requirements and restrictions on bales for foreign shipment are numerous and exacting. They vary according to the countries for which goods are intended. In all cases, however, the bale must have a certain "density" or weight per cubic foot, and it must have enough ropes on it to hold the bale in shape. This is about one rope 3/8 inches in diameter every three or four inches, or say 11 ropes for 36-inch goods.

Bales for domestic markets frequently use quarter inch ropes 6 inches apart, or say 6 ropes for 36-inch goods.

351. Presses may be operated by a screw, by toggle joints, or by hydraulic pressure. They are made to suit all requirements as to size and shape of bale, and as to pressure required. They are rated at so many tons pressure. A hundred ton press would answer for domestic use, while a three hundred ton press would be required for the export trade.

One good cloth press should bale the goods from 300 to 500 looms.

SPECIFICATIONS.

352. Following is a sample blank to be filled out in ordering cloth presses:

Kind of Press: Knuckle Joint, Screw or Hydraulic________

Tons Pressure Required________

(Continued on Page 27)

The Economy of Adequate Humidification

ParkSpray Humidification Means Money for You

Humidifiers Started Upside Down

In our last talk, I said that humidifying practices started upside down. They started out merely to "kill static." That was all that was expected of them.

Static in a textile mill is a symptom—not a disease. It's a symptom that friction is present and is generating heat. Friction and static were the first symptoms of speed—making humidifiers more essential to you than to your grand-dad.

Even in those old cotton mills, things didn't go well on certain days. Then on other days they seemed to go all right. Somebody noticed that on the poor days the air felt dry. So he tried the experiment of releasing a little vapor (steam was the only vapor available) and things went better. I say they went better; better for a time.

Static generated by frictional heat is neutralized by vapor; but the heat in steam vapor adds more heat to the air. You might just as well try to put out a fire with kerosene because it looks like water—as to improve a condition that has been generated by heat, with more heat.

Now you know what I mean when I say humidifier practices started upside down.

Ben Franklin found out that lightning was electricity—but it took a lot of time to develop the General Electric. So—humidification in the textile business has passed through the kindergarten, the primary grades, the high-school and college—in these progressive steps.

1. The kindergarten step was to kill static electricity. A trouble was recognized but the cause was not.
2. And then came development; it included a study of breaking strengths, numbers of ends down, and "regain."
3. Now we are taking in cooling effect; neutralizing the heat that high speed machinery just naturally gives off.
4. And that leads us to Regulation; shutting off the humidifiers when there is too much humidity; turning them on when there isn't enough. All automatically.

You see the business first played with blocks, then learned the multiplication table, then soaked up higher mathematics—and now is dallying with the fourth dimension.

One of our competitors said we were a bunch of college professors on a research debauch, so not very practical. The next talk is going to be so darned practical you can omit it if you want to.

Parks-Cramer Company
Engineers & Contractors
Industrial Piping and Air Conditioning
Fitchburg Boston Charlotte
Canadian Agents, W. J. Westaway Company, Ltd.,
Hamilton, Ontario, Montreal, Quebec.

Adequate Humidity means adequate capacity. Capacity means gallons.
In gallons of water evaporated, ParkSpray equipment is the lowest in price.

SOUTHERN
TEXTILE BULLETIN

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Spindles and Population

IT is not the number of cotton spindles that we have but the spindles per unit of population that matters.

It is reasonable to assume that with 117,000,000 million people in the United States in 1926 we need more spindles than in 1905 when we had only 84,000,000 population.

In order to determine whether or not we are operating too many cotton spindles in proportion to our population we have compiled the table given below which shows the population of the United States and the cotton spindles since 1860 and from these we have compiled the active spindles per 1,000 of population.

The figures given are those of September in each year, but we have also included those of January 1926.

Our compilation takes into consideration only active spindles for the reason that they are the ones that are producing yarn or goods and many of the idle spindles are antiquated and a large per cent of them will never be put into operation again.

This compilation shows that in January, 1926, although it was a period of revived cotton goods business, we were only operating 280 cotton spindles per 1,000 population or slightly less than in 1905 and considerably less than the intervening years.

Of course, the first answer will be that we need less spindles per 1,000 population because women now wear less clothes than formerly.

It is true that women now wear few clothes, but they had greatly reduced their clothing before 1910 and when we talk of long dresses and petticoats we are really talking about the days of mothers and grandmothers of the young women of today.

People still use cotton towels, cotton bedsheets, cotton sails, cotton shoe linings and the idea that women's wear consumed about ninety per cent of the cotton goods is very erroneous.

In 1905 there were very few automobiles and with the automobile has come an immense consumption of cotton goods for tires, top covers, etc., and it is our opinion that automobiles have increased the consumption of cotton goods to a greater extent than it has been decreased by the reduction in womens wear.

When we are operating only 280 spindles per 1,000 population against 326 to 335 during the years 1920 to 1923, the situation would appear to be safe if it were not for the uncertainty of the proper allowance to be made for night operation.

While undoubtedly there has been an increase in night operations in the South, it is a mistake to assume that there were no mills operating nights in 1905 or 1910.

A recent Government report showed that during February the spindle operations were equivalent to 102.4 per cent of a full day run for all spindles in place. As there are 38,000,000 cotton spindles in place in the United States the total February night and day operations were equivalent to 38,922,000 spindles running day time only or 332 spindles per 1,000 population.

Not allowing for any night operations in 1910, or the shortening of the working day since then, we had in February, 1926, allowing for night operations very nearly as many spindles per 1,000 of population producing cotton goods and making allowances for night operations in 1915, we are on practically the same basis as then.

In our opinion this study has disclosed facts that should be the basis of much optimism and explains how it has been possible for Southern mills to operate upon a fairly full schedule since last September and at the same time liquidate the large stocks of cotton goods held by them last summer.

With nine out of ten men predicting an immense cotton acreage and a bumper cotton crop, there is no reason to expect buyers of cotton yarns or goods to be active in placing orders at this time.

The mill man who is buying his cotton from hand-to-mouth, sits up nights in order to do a little extra howling and complaining because the buyers of goods and yarns is buying in the same manner that he buys his cotton.

Consumption of cotton goods in the United States was the largest on record during 1925 and in our opinion will be larger during 1926.

With small stocks of goods and yarns the situation is healthy and any stability of cotton as the result of a sharp decline or of injury to crop prospects could easily produce a prosperous period.

Fine yarns mills in Gaston county that have plenty of business on their books are curtailing in cooperation with the other fine yarn mills in order to help the situation and that means that a new day has dawned in the textile industry of the South.

The mill that accumulates goods may have to take a severe loss if cotton declines, but otherwise prosperity is much nearer than is generally believed.

COMPARISON OF ACTIVE COTTON SPINDLES AND POPULATION
(000 omitted)

Year	Population of U. S.	Active Spindles			Active Spindles in U. S. per 1000 people
		South	Other States	Total in U. S.	
1860	31,433	324	4,911	5,236	166.52
1870	38,558	327	6,804	7,132	184.96
1880	50,155	561	10,092	10,653	212.40
1890	62,947	1,570	12,614	14,384	228.51
1900	75,994	4,368	15,104	19,472	256.23
1905	84,219	7,631	16,053	23,687	281.25
1910	91,972	10,494	17,773	28,267	307.34
1915	99,342	12,956	19,008	31,964	321.75
1920	105,710	15,231	20,250	35,480	335.63
1921	107,833	15,709	20,339	36,047	334.28
1922	109,248	15,906	19,802	35,707	326,84
1923	110,663	16,310	19,950	36,260	327.66
1924	112,078	16,944	18,905	35,849	319.85
1925	115,378	17,292	17,740	35,032	303.63
1926 (Jan.)	117,135	17,177	15,626	32,803	280.04

Praises for Delgado Mills

A SHORT time ago a party of New England men including the editor of the Woburn Daily Times, visited Wilmington, N. C.. and while there went through the delgado Mills.

After their return to New England the editor of the Woburn Daily Times wrote a letter in which he said:

> **"I was glad to take back from the South a good and wholesome idea of the conditions in the Delgado Mills, for there was a happy looking group of employees in that mill.."**

This is but one of the many instances in which men have found conditions in Southern mills far different from those that have been presented to the public through the propaganda of uplifters.

Crooked Steel Company

WE wish to warn the mills against transacting business with the Union Steel Company of America. Through the use of a trick order blank, mills that have ordered a few small pieces of steel from this company have received large shipments of steel bars, on some cases amounting to $700.

It is a plain case of fraud and any mill involved should refuse to pay the bills. The Union Steel Company usually threatens to sue and calls attention to the expenses incident to the suit, but the mills that have refused to pay anything have received shipping instructions.

It is an old game that was freely worked on the cotton mills about 25 years ago.

Southern Textile Association

THE eighteenth annual meeting of the Southern Textile Association will be held at Tybee Beach, Georgia on July 16th and 17th. The dates for the meeting this year are made somewhat later than is usual due to the fact that it is important that a meeting at the beach be held after summer is well advanced.

The program for the meeting has not yet been announced, but it will be one of the most interesting meetings the association has yet held. The Sectional Meeings, held since the last annual convention, have been not only of unusual interest and value, but the increased attendance reflects the interest that the members are taking in the work of the association. The work that has been done at the Sectional Meetings will be reviewed at the annual meeting.

Tybee Beach is a very interesting and popular resort and the entertainment features of the meeting should prove unusually interesting. It has been some time since the association met at the seashore and the decision to have the meeting at Tybee this year should prove a popular one.

The attendance gives promise of being in keeping with the excellent records of the past several meetings.

Personal News

J. D. Watkins, of Macon, Ga., has become second hand in spinning at the Piedmont Mills, Egan, Ga.

J. H. Stillwell has resigned as superintendent of the Clara Cotton Mills, Gastonia, N. C.

S. H. Wilson has been promoted to overseer of carding at the Hamrick Mills, Gaffney, S. C.

Ingram Lee has been appointed night superintendent of the Dallas Textile Mills, Dallas, Texas.

W. B. Stuart has been promoted from second hand to overseer of No. 2 weaving at the Lancaster Mills, Lancaster, S. C.

W. B. Stuart has been promoted from second hand to overseer of No. 2 weaving at the Lancaster Cotton Mills, Lancaster, S. C.

T. C. Hughes has resigned as superintendent of the Glenn-Lowry plant of the Aragon-Baldwin Mills, Whitmire, S. C.

A. J. Blackwood has resigned as superintendent of the Durham Hosiery Mills Nos. 4 and 7, Chapel Hill, N. C.

Z. V. Clifton, of Fort Mill, S. C., has accepted the position of overseer weaving at the Springstein Mills, Chester, S. C.

J. W. Brown has resigned as overseer of spinning at the Aragon-Baldwin Mills, Chester, S. C., and accepted a similar position at the Wymojo Mills, Rock Hill, S. C.

W. L. Barbee, reported last week as overseer carding at the Clover Mills Company, Clover, S. C., is not overseer carding, but has a position in the comber department.

W. P. Wingate, formerly superintendent of the Aileen Mills Biscoe, N. C., has accepted a similar position at the Clara Cotton Mills, Gastonia, N. C.

O. L. Yarborough has resigned as night overseer of spinning at the Manville-Jenckes Company, High Shoals, N. C., to accept a similar position at the Chadwick-Hoskins Mills o. 5, Pineville, N. C.

Floyd Durham, formerly assistant superintendent of the Durham Hosiery Mills, No. 6, Durham, N. C., has been promoted to superintendent of the Nos. 4 and 7 plants at Chapel Hill, N. C.

J. M. Hooper has resigned as overseer weaving at the High Shoals plant of the Manville-Jenckes Company, High Shoals, N. C., to accept a similar position at the Savona Manufacturing Company, Charlotte.

H. E. Beattie has resigned as second hand in weaving at the High Shoals plant of the Manville-Jenckes Company, High Shoals, N. C., to become second hand in No. 1 weaving at the Savona Manufacturing Company, Charlotte.

G. A. Bartlett has been promoted from second hand to overseer of weaving at the Dallas Textile Mills, Dallas, Texas.

Robert Burgess, formerly of the Brookside Mills, Knoxville, Tenn., has accepted a position in the No. 3 weave room at the Lancaster Cotton Mills, Lancaster, S. C.

W. J. Still has been promoted from overseer carding to superintendent of the Aragon plant of the Aragon-Baldwin Mills, Rock Hill, S. C.

W. T. Creswell, recently reported as accepted a position with the Boger and Crawford Spinning Company, Lincolnton, N. C., is overseer carding at that mill.

B. L. Caldwell has been transferred from overseer carding to overseer combing at the Boger and Crawford Spinning Company, Lincolnton, N. C.

M. Y. Sprouse has been transferred from the Musgrove Mills Gaffney, S. C., to overseer weaving at the Limestone Mills, of the same place.

R. L. Templeton has been transferred from superintendent of the Aragon plant of the Aragon-Baldwin Mills, Rock Hill, S. C., to a similar position at the Glenn-Lowry plant of the same company, at Whitmire, S. C.

Maurice R. Hart who has been with the Morse Chain Company for several years in the production department and the last two years in the Sales Department has been appointed manager of the Buffalo district. An office has been opened in the Ellicott Square Building, Buffalo, New York.

Chas. A. Cannon, head of the Cannon Mills was unanimously endorsed by the State Republican Convention of North Carolina for candidate for U. S. Senator, to oppose Lee S. Overman, democrat. Mr. Cannon, however declined to become a candidate.

Johnston-Newcombe.

C. W. Johnston, head of the Highland Park group of mills of Charlotte, and Mrs. Jeanette Elliott Newcombe, also of Charlotte, were married in New York on Monday. They sailed immediately after the wedding for an extended trip to Europe.

Robert R. Bellamy

Robert R. Bellamy, president of the Delgado Mills, Wilmington, N. C., and also head of the R. R. Bellamy Wholesale Drug Co., died at his home in Wilmington April 7. Mr. Bellamy has been prominently identified with the business life of Wilmington for over fifty years and was one of best known men in Eastern North Carolina.

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MILL NEWS ITEMS OF INTEREST

Waxhaw, N. C.—The Rodman-Heath Mills have discontinued night operations.

Monroe, N. C. — The Icemorelee Mills have discontinued night work at both their yarn mill and knitting mill.

Easley, S. C.—The Easley Cotton Mills will not install sewing machines for the manufacture of underwear as recently reported.

LaFayette, Ala.—Recent reports that the LaFayette Cotton Mills would increase their capacity are denied by the mill management.

Danville, Va.—The Riverside and Dan River Mills began curtailment this week. They will operate some of their departments on a four day a week and others five days a week.

Columbus, Ga.—The Swift Manufacturing Company will erect an addition to its cotton cleaning building at Fourteeth Street and Sixth Ave., the building and equipment to cost $15,000.

Sand Springs, Okla.—The C. R. Miller Manufacturing Company will issue additional preferred and common stock to finance the building of a bleaching and finishing plant to their Sand Springs plant here.

Palmetto, Ga.—The Palmetto Cotton Mills are making good progress in building an addition for warping and slashing department. The extension to the building will be 72x90 feet. They are also renovating their main mill building and putting it in first class condition throughout.

Chester, S. C.—A tract of land adjoining the Sprinstein Mills has been purchased by Col. Leroy Springs, president of the mill. No announcement as to whether the mill will build aditional homes for the workers has been made.

Charlotte, N. C.—It is understood that two companies will be formed for the reorganization of the Mecklenburg Mills, which were recently sold by the receiver. One corporation will take over and operate the plant in North Charlotte. A second corporation, headed by R. B. Knox, president of the City Cotton Mills, of Newton, will be organized to operate the mills at that place. Mr. Knox expects to have associated with him a number of prominent mill men who will be represented on the board of directors by H. W. Anderson, of the Fidelity Machine Company, Philadelphia.

More definite information concerning the plans for operating the mills is expected within a short time. All of the property was bid in at the sale by the bondholders' committee.

Johnson City, Tenn.—It is reported that the American Bemberg Corp., which now has a large rayon plant under construction near here, will erect two additional units. Lockwood, Greene & Co., are the engineers.

LaGrange, Ga.—All of the new machinery at the Dunson Mills is now in operation, and the mill is now operating a total of 42,000 spindles. Twenty-five new homes for operatives were recently completed and other improvements made.

Gadsden, Ala.—Contract has been let to A. K. Adams, Atlanta, for the construction of the building for the Sauquoet Spinning Company. This mill will have 20,000 spindles and cotton yarn will be produced. The main building will be 104 feet wide and 400 feet long, two stories high and have a wing 80 by 50 feet. In addition there will be four one-story buildings, 50 x 100 feet. Work will start next week and be completed in four or five months.

Kingsports, Tenn. — Officials of the Borden Mills state that they have no plans at present for constructing an additional unit to their mill here as was recently reported.

Houston, Texas. — The Houston Textile Mills, which recently let contract to G. C. Street Construction Co., as noted, have placed contracts for spinning machinery with the Whitin Machine Works, for looms with the Crompton & Knowles Loom Works and for motors with the General Electric Company.

About 5,000 additional spindles will be installed in the addition.

Huntsville, Ala.—All of the textile mills in the Huntsville district are continuing full time operations, and practically all of them have full complements of operatives, despite a slowing up in the market, it was stated by the superintendent of one of the largest plants. There is no curtailment of production contemplated by any of the mills here so far as can be learned.

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Aragon, Ga.—The recent reports that the Aragon Mills were to build an addition and install new machinery are erroneous, according to officials of the mill company. The reports have been in circulation for some time it is said, but the mill does not plan to make any addition to the plant.

Atlanta, Ga.—It is understood that the Fulton Bag and Cotton Mills plan to purchase the plant of John T. Milliken & Co., at Third and Cedar streets. The building is five stories, brick and concrete and if purchased will be remodeled at a cost of $60,000 and equipped with mill machinery.

Langdale, Ala.—It has been announced that a large addition will be made to Langdale Mill as quickly as the necessary building can be erected. The increase will be in the shape of a weave shed to be located at the north end of the building where the mill offices are now located.

The new building will be of the most approved modern construction with saw-tooth roof. It is to be three hundred and twenty five feet from east to west and one hundred and twenty three feet in width from north to south. The floor space wil provide room for three hundred fifty looms.

Gadsden, Ala.—Formal organization of the Sauquoit Spinning Company, of Alabama as been completed and the contract for the mill building is expected to be let within a short time. Machinery for the mill will be moved from the Sauquoit plant at Capron, N. Y.

At the organization meeting held here, the officers elected were: Otto Agricola, president; O. R. Hood, vice-president; A. P. Reich, treasurer; W. R. Merriman, assistant treasuruer; W. P. Gwin, secretary. The officers with J. L. Herring, W. H. Butler and H. L. Ralls compose the board of directors. The stock is to be divided into common, first preferred and second preferred. There are 5,000 shares of common stock which have been disposed of at $30 a share; 3,000 shares of preferred stock which has been disposed of at par value of $100 and 5,000 shares of second preferred of no par value. Roberts & Co., Atlanta, Ga., are the engineers.

Greenville, S. C.—The proposed loft building for Greenville may become a reality.

Some important information is likely to be given out in the near future by the special committee of the Chamber of Commerce in accordance to a statement made by President W. E. Beattie.

President Beattie informed the board that the committe investigating the possibilities of erecting a loft building in the city hopes to have a favorable report ready by the time the board holds its next meeting. The suggestion that this city have a loft building in which small manufacturers could secure a limited amount of space with power and other convenience furnished, such as are to be found in the large cities was one of the important recommendations made by President Beattie to the Chamber of Commerce. It is believed that this building will be the means of bringing a number of small manufacturers of diversified products to the city.

North Carolina Spinners Meet Soon

The North Carolina Spinners Division of the Southern Textile Association will probably meet on April 30 or May 4, acording to C. M. Black, chairman. Mr. Black recently mailed a letter to superintendents and spinners in eastern North Carolina relative to the coming meeting and asking them whether April 30 or May 4 would be the most convenient date for the meeting. Mr. Black's letter said:

"At a recent sectional meeting of the Spinners' Division of the Southern Textile Association it was discussed and deemed best that, owing to the distance we spinners of Eastern North Carolina live from the usual selected meeting-places of the association, and our problems, too, being generally a little different from those of spinners of weaving yarns exclusively, that we have meetings fro mtime to time of superintendents and spinners here in Eastern North Carolina, and discuss our problems for the betterment of ourselves and the interest of our employers. The writer was appointed chairman, and agreed to try to get all of us together, and I am now asking if I may depend on you for support in this movement, either by being present yourself with your spinner; or, if you can't attend, will send him?

"This meeting will be held at reach by cars or train, so that we some place convenient for all to may have our discussion and talks, and get through in time for all to get home that night. In view of this, I trust you will designate in your reply if Goldsboro will be agreeable to you as the first meeting-place. This meeting will have to be held in May, so that the minutes can be sent in as report to the general meeting of the association in June.

"Will you please write me fully your views on this matter, and if I can expect your loyal support, as you no doubht know it will do us all good to meet and thrash out any problems that may arise, and will enable us to know each other better as neighbors, and become friends more closely allied in our life's work?

"Kindly give me your co-operation."

South Carolina Association Meeting

Spartanburg, S. C.—Date for the annual meeting of the South Caroline Cotton Manufacturers' Association was left in the hands of J. Choice E. Evins, president, at a call of the executive committee of the executive committee of the organization at Cleveland hotel Friday.

Because of the fact that Asheville hotels will be unable to accommodate the convention on July 5, which had previously been set for the convention, another date is necessary. It will be held in Asheville some time in June, the exact date to be determined by available hotel accommodations.

While the association"s executive committee meets quarterly for the purpose of considering the coal situation, but little attention was given to that. Neither was the matter of curtailment brought up, for the meeting was more of a social nature than any other, it was annuonced.

President Evins stated that, although his information was not official, coming only from employers, he had heard that many yarn mills in North Carolina are beginning curtailment by cutting off their night shifts.

Following the meeting which lasted about an hour, the visiting manufacturers launched together in the dining room and returned to their various homes.

Among those present at the gathering were W. E. Beattie Ben Geer, T. M. Marchant and J. W. Arrington, of Greenville; Alex Long of Rock Hill; J. T. Gossett, of Rock Hill, and Leonard Little, of Lyman, and W. S. Montgomery, J. A. Chapman and J. Choice Evins, of this city.

Mills to Exhibit.

That comprehensive textile exhibits will be displayed at the third Piedmont exposition to begin in Spartanburg, April 16 was announced from headquarters.

The Pacific Mills has decided to make an exhibit which will require two booths, in which young women from the finishing department of the plant at Lyman will be shown engaged inl the actual operation of the finishing machine. In addition to this feature the company's products such as crash towels, pillow cases, etc., will be displayed.

The management of the Arcadia, Arkwright, Spartan, Pacolet, Clifton, Chesnee and Saxon Mills have already agreed to participate in a cooperative display of their produts, which will be arranged under the supervision of the official decorator of the exposition, and all of the other mills of the county will doubtless be represented in this cooperative display. The co-operative exhibit will show the processes of the manufacture of cotton, and finished cloth from the several mills will be arranged in an unusual type of display.

Textile Specialty Company

The Textile Specialty Company, recently organized in Greensboro, N. C., has begun active business. The new organization will manufacture loom reeds and slasher combs, production of which has already been started, and will probably manufacture other specialties later. The company are also Southern sales agents for Salembier and Villate, silk importers and throwers. This company has already a large established silk business in the South. They recently opened in Charlotte a plant for processing rayon warps.

The Textile Specialty Company was organized by F. A. Decker, L. C. Atkisson and E. R. Bond. Mr. Decker has for some time represented Salembier and Villate in the Southern territory and is well known to the mill men in this section. He was also for some years with the Steel Heddle Co.

Mr. Atkisson has for the past nine years been Southern representative for H. F. Livermore and has a large number of friends in the Southern textile territory.

Mr. Bond is an expert comb ana reed manufacturer and will have charge of the company's plant in Greensboro.

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LOOM LEATHERS
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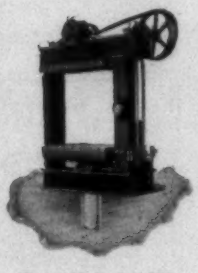

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Importance of Rayon

A recent bulletin of the Textile Division of the American Society of Mechanical Engineers says:

"The increasing importance of rayon is shown by the report of the Textile Division of the Department of Commerce, recently issued, which estimates that the output of this product in the United States will reach at least 50,000,000 pounds, and despite this enormous increase in production, the inability of plants in the United States to supply the demands for this fibre has resulted in the importation of over 5,000,000 pounds. In the United States the production and consumption of rayon continued very steadily during the current year. The output of the American plants for the first half of 1925 is reported as slightly over 24,000,000 pounds, and, as they have been working at capacity, which has been increasing, the production for the last half of the year is expected to be even larger. (Later reports indicate a production of 55,000,000 pounds in 1925.)

Figures compiled by important rayon manufacturers show that the knit goods industry was largest consumer of rayon, taking 25 per cent of the entire American consumption in 1922. The hosiery manufacturers followed with 22 per cent, and considerable quantities were taken by the cotton mills, silk mills, and other branches of the textile industry. One important advantage to the consumers of rayon is the price stability. The producers announced their prices for the coming quarter, opened their books for orders and allotted their output. During a considerable portion of 1925, premiums were paid for immediate deliveries of yarns.

The competition of foreign yarns with those produced in this country is dependent chiefly on the American supply available for consumption. In 1922 the importation totalled 2,088,000 pounds. The following year they amounted to 3,906,000 pounds, almost double the takings of 1922. This was followed by an appreciable price cut by the principle American producers, which resulted in greatly reduced imports in 1924.

France, which is the old home of the natural silk industry, has now a well established rayon industry. Until recently this industry was localized in the South, but it has now become well rooted in the Roubaix-Tourcoing woolen textile district of the North. Notwithstanding the large output of the French works, it is absorbed almost entirely in the country.

England has not been slow to make rayon production one of its important textile branches, and the cotton and wool textile circles have become large users. The first manufacturers have increased their productive capacity to the extreme limit and new factories are frequently being built. One of the largest English producers has started branches in Canada, India and other countries.

In Germany the breakup of the Munition manufacturing industry after the war procided the stimulus for the establishment of the rayon industry in order to keep factories employed. Since then the industry has prospered, and at present is in a much better position than the other textile branches in Germany.

Quite remarkable is the development of the industry in Italy, where it is favored by cheap and capable labor and a home production of the necessary chemicals. This country has attained in about four years a powerful position as a manufacturer and exporter. The consumption in Italy is mainly of the home product, and each year that passes sees an increasing surplus for export.

The Japanese annual demand for rayon is increasing steadily and at present amounts to 3,500,000 pounds. At first consumers in Japan did not seriously consider the use of the artificial product, due to the fact that the cultivation of the silk worm is a national industry on which the prosperity of the country depends, and naturally anything that retarded the production of silk was looked askance. Due to lower prices and increasing popularity of rayon not only were large quantities imported, but its manufacture in Japan on a large scale is now assured."

The absorbing interest in rayon is further attested by the prominence given in the texttile press to discussions of the various problems attendant upon the use of this inprodigy. At Providence, the last three addresses before textile groups have been (1) The Dyeing of Acetate Silk, (2) Rayon's Future in Fashion, by M. D. C. Crawford, and (3) Denier and Spun Rayon. This last paper was read before the Textile Section of the Providence Engineering Society on February 23rd, Herbert R. Manersburg of New York. Mr. Manersburg, after a brief exposition of the chemical distinctions and methods of manufacture of the various types of rayon, discussed in a most clear and fascinating manner a number of problems created by the use of rayon in the manufacture of fabrics. The questions directed to Mr. Manersburger after the formal presentation of the paper, were ample evidence of the interest with which his paper was received.

Your committee wishes to announce that in addition to Sidney S. Paine's paper on Fundamental measurement in a Cotton Mill, and to Dr. Edward's paper, Mr. Tiger will read a paper on "Engineering Aspects of Treating Textile Water Supplies." These three papers will constitute the contribution of the Textile Division of the A. S. M. E. for the Regional Meeting at Providence. The character of these papers warrants the interest of every member of the Division.

The recently announced decision of the Southern Textile Association to cooperate with the American Society for Testing Materials towards the development of standards is one of the refreshing and stimulating items of current news and significant evidence of the necessity for the development of more accurate technical knowledge in textile manufacture. As an indication of the spirit of the industry, it will be welcomed by every exponent of engineering ideals.

Knit Goods Exported During Feb.

Washington, D. C.—Domestic exports of cotton knit goods during Februry, were valued at $1,164,699, according to figures made public by the Department of Commerce. Shipments during the period to non-contiguous territories were valued at $72,277. Seventy-two countries purchased cotton knit goods during February.

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Cotton Mill Processes and Calculations

(Continued from Page 20)

Kind of Goods to be Baled ....
Size of Finished Bale ....
Density of Finished Bale ....
Piling Space (Height Goods can be Piled Loose) ....
Distance Between Columns Across Front ....
Distance Between Column Across Side ....
Floor Space Occupied by Press ....
Height Over All ....
Distance Between Centre of Press and Countershaft ....
Height of Countershaft from Floor ....
To Pack Up or Down ....
Size of Packing Pulley on Countershaft ....
Size of Reversing Pulley on Countershaft ....
Size of Loose Pulley on Countershaft ....
Speed of Countershaft ....
Maker ....
Purchaser ....
Price ....
Terms ....
Remarks ....

CHAPTER XIV

Preparation of Yarn For Market

353. In Chapter X, it was shown how yarn is treated after leaving the spinning frame, when it is to be woven into cloth in the same mill.

Some mills spin yarn for other uses, either on the premises or in a distant market. The preparatory treatment of yarn in these cases will be different according to the ultimate use for which it is intended.

Market yarns may be classified as "single yarns" and "ply yarns" (English, "folded yarns.") Ply yarns are 2-ply, 3-ply, etc., according to the number of strands or "ends" that are twisted together.

354. Twisting may be done on the mule, but in the South it is universally done on the ring twister.

Ring Twister.—Fig. 56.—LETTERING.

A	Creel.
B	Spools in Creel.
C	Guide Eye.
D	Trough (for Wet Twister.)
E	Top Roll.
F	Bottom Roll.
G	Glass Rod on Thread Board (Wet Twister.)
H, U	Ring.
K, W	Ring Rail.
L, V	Traveler.
N	Tin Cylinder.
P	Whorl on Spindle.
R, S	Spindle.
T	Thread Guide (Dry Twister.)
X	Traverse Bar for Guide Eyes.

Ring Twister.—PROCESS.

355. Spools of yarn from the spooler are put into the creel. Two strands (if for 2-ply) are drawn together through the guide eye and around the rolls, as shown, and through thread guide and traveler. They are attached to the bobbin, as on spinning frame.

Bobbin and spindle are driven by a cord band from tin cylinder, as on spinning frame. But it is driven in the oppo-

SUPERINTENDENTS AND OVERSEERS.

We wish to obtain a complete list of the superintendents and overseers of every cotton mill in the South. Please fill in the enclosed blank and send it to us.

______________________________1923

Name of Mill ______________________________

Town ______________________________

__________ Spinning Spindles ______________________________ Looms

______________________________ Superintendent

______________________________ Carder

______________________________ Spinner

______________________________ Weaver

______________________________ Cloth Room

______________________________ Dyer

______________________________ Master Mechanic

Recent changes ______________________________

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site direction from the original spinning, that is, not clockwise.

Spindle is made with a lug or projection to fit a corresponding slot in bobbin (shown at R), so it will carry it positively in this case, instead of by friction as in spinning.

The bottom roll is driven from the shaft of tin cylinder by gearing in the head of frame. The speed of this roll is determined by the "twist gear." The twisting process and the calculations for finding twist gear, etc., are identical with the spinning frame.

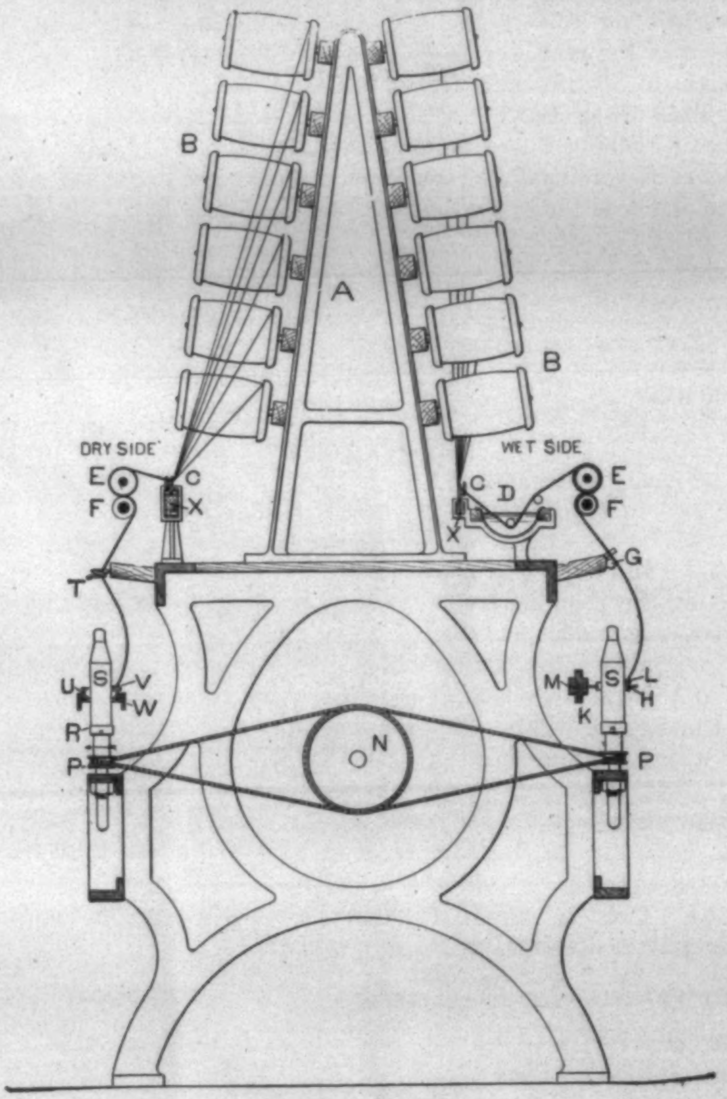

Fig. 56. Twister.

Twisters are made with building motions in the same way as spinning frames, that is with warp wind or with filling wind, as required. When the yarn from a filling bobbin is to be wound on spools, the warp wind is generally preferable. But if it is to be taken to a reel or a cone winder, which draws the yarn off over the top of bobbin, the filling wind is preferable.

When twisting very coarse yarns in large rings, the twister bobbin is made like a spool, with double heads. These may be mounted direct in the creel of a Denn or beam warper, omitting the usual intermediate process of spooling.

Ordinarily there is but one bottom roll on each side of a twister. The top roll is solid cast iron, weighing about 2 pounds. It is loosely held in slotted bearings in the cap bars in such a way that it is held down on bottom roll by its own weight.

Some twisters are made with two bottom rolls on each side. In this case the top roll rests on them both.

Wet Twist.

356. For some purposes twisted yarn is required to be very smooth and free from "ooziness," or fuzzy ends of fibres which ordinarily stand out around yarn. The wet twister is used to make this yarn. It works the same as dry twister, but has on the frame a little trough of water, through which the strands of yarn are made to pass before being twisted. The passage between bottom and top rolls squeezes out the surplus water. On a wet twister, all of the parts coming in contact with the wet yarn are made of brass, or some metal that will not rust. Such parts are the guide eye, rolls, thread guide, traveler and ring holder.

It would seem that the ring should also be of the same metal, but it wears better when of steel. Rings on dry twister are similar to spinning rings; but on wet twister, "vertical rings" are mostly used. Fig. 56 shows a twister with one side arranged for dry twist, with flange rings, same as spinning rings. The other side shows arrangement for wet twisting with vertical rings. The water from wet yarn runs off the vertical ring more readily than a flange ring.

Twisters are not made this way in practice. The frame is made either for a wet twister or a dry twister.

Fig. 57 shows the vertical ring in detail, and the peculiar shaped composition metal traveler. The ring H is expanded into the ring holder M. The ring holder is riveted to the ring rail as shown.

The general features of a ring twister, such as weights, floor space, etc., are about the same as a ring spinning frame.

The cost per spindle is about 50 per cent. more. Generally speaking, 1 twister spindle on 2-ply will twist the product of 2 spinning spindles.

The speed of front roll and the production is less than spinning frame. See appendix for full tables, showing speed, twist, etc., for different numbers.

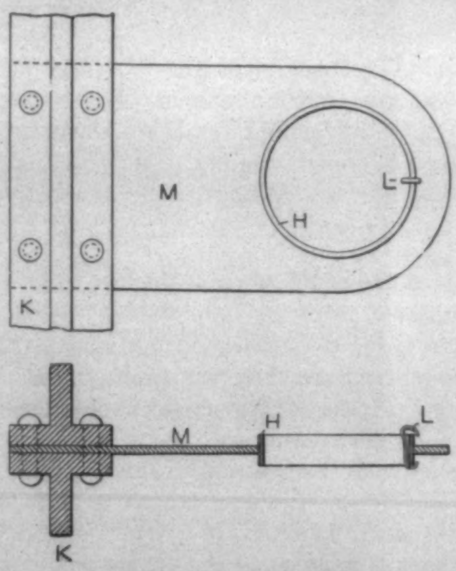

Fig. 57. Vertical Ring.

Travelers.

357. The proper weight of traveler is quite as important in twisting as in spinning, though a little wider range in weights is permissible. As in spinning, the lightest traveler permissible is the one that will sufficiently hold the ballooning in bounds, and also be heavy enough to break down "singles" (65). The heaviest allowable is one that will not break the twisted yarn. The proper size to select is somewhere between these limits, according to the judgment of the man in charge. The lightest permissible traveler would always be selected, for the sake of saving power, and avoiding undue stretch in

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yarn; but care must be taken not to allow too much ballooning, otherwise when an end breaks down, it might become entangled with an adjacent end and make a lot of 4-ply, when only 2-ply is intended. Separators are rarely used on twisters.

358. The amount of twist to be put in varies with the purpose for which yarn is intended. The amount of twist per inch for each different number is usually specified by the purchaser, and the mill must arrange twist gear to correspond. The twist is usually 4, 5 or 6 times the square root of the twisted number. On account of the heavy weight of bobbin and yarn, there is always some slippage of the bands, so that the spindles do not run so fast as calculations would show. Hence the actual twist is always less than the calculated. As this depends to some extent on the tightness of the bands and on the lubrication of spindle, and on other uncertain elements, there is no general rule for allowing for this slip. The usual method is to put on a twist gear with one or two teeth less than calculations indicate, and run a few bobbins and count the twist and make whatever alteration in twist gear may seem necessary to bring the average about right. It is not easy to get it uniform, nor it is always required; though the average twist may be easily obtained.

A "pick glass" (a small magnifying glass, such as is used to count the picks in cloth) is used to count the turns per inch. The twist in ply yarns should be counted in 4, 5 or 6 places and the average taken.

359. As much as 6-ply may be made on the twister described. When more strands than about 6 are to be twisted, they are usually twisted on special machinery, similar to rope machinery.

360. For special purposes, the "cable twist" is required. This is made by twisting first 2 or 3-ply, and then twisting several strands of the twisted yarn. In this case the direction of twist is reversed each time. If yarn is spun with right hand twist, the first twisting will be left hand, and the second right hand.

361. The same methods of putting up yarn for the market may be followed for either single or ply yarns. The usual methods are: Chain Warping (or Denn warping), ball warping, beam warping (rare), reeling, cone winding, tube winding.

GENERAL DATA.

362. Twisters are made 38 to 42 inches wide, according to gauge and make.

It is usual to order twisters about as long as the spinning frames in the mill where they are to be used. This is not important, but it gives a symmetrical appearance to the machinery, especially in cases where the twisters are to be placed in the same room with the spinning frames. In Southern mills the favorite length of spinning frame is 208 spindles 2¾ gauge, which is about 27 feet. If twisters are to be about 27 feet, the number of spindles to the frame would vary according to the gauge, and this would vary according to the number of yarn being twisted. If No. 20 yarn is to be twisted 2-ply, the ring would be 2¼, and gauge 3¼; and a frame 27 feet long would have about 180 spindles. Frames with larger gauge would have fewer spindles, and those with smaller gauge more.

The weight of twister varies with the gauge, but for average sizes, say 3½-inch gauge, the weight is about 40 pounds per spindle. Power required varies with the number of yarn being twisted, say 40 spindles per H. P. for No. 12, to 60 spindles per H. P. for No. 30.

(Continued next Week)

Scientists Seek Fibre Knowledge

(Continued from Page 10)

gregate cellulose molecule is still lacking.

The nature of the spinning solution, as regards its crystalloid or collodial character, and a thorough chemical knowledge of each step in the manufacture of the artificial fiber, will surely simplify some of the troubles of standardization and thorough control in obtaining the desired quality of final product.

The recovery of waste products and regenerataion of cellulose fiber from used garments is another field for extensive research.

Rayon represents an independent substance not necessarily destined to compete, by itself, with either silk or cotton. Each of the foregoing processes produce a distinct type of fiber, easily identified by anyone of experience. Acetate silk has very little affinity for moisture and hence presents a separate problem to a dye chemist.

Like any other new product, rayon has to enjoy the thrills and suffer orthodox prejudices in the competitive world. It goes without saying that the introduction of rayon into the textile world has given full play to the creaative and artistic combination of weaving and dyeing a new type of attractive fabric. Statistics show the increasing demand for this novel and attractive material.

A continued steady progress in artificial fiber manufacture can be maintained only upon its improvcment and increased utility of the finished product. The present status of this rapidly growing industry clearly indicates the value of scientific research. There is no better use known, at present, for the wood and cellulose resources that were lumber and waste products once than its conversion into rayon.

Those organizations, appreciating the uncounted riches to be gained by a further development of this extremely important field of activity, will be first to garner the rewards of their vision; if they loose their purse strings and place a sufficient amount of money aside for the purpose of letting men of science point the way to profits yet undreamed by the wildest imaginations of Egypt's richest kings.

Advises Mills to Advertise

Atlanta, Ga. — After submitting many new recommendations for the control of cotton future dealings and the improvement of the cotton industry in general, the annual concention of the America Cotton Shippers Association adjourned its meeting here.

Manipulation of cotton futures was particularly scored and several suggestions for relief were offered. One solution of the problem was presented by W. L. Clayton, Houston, Texas, cotton dealer, who suggested that cotton bought on New York contracts be delivered in the South, Southern delivery has already been recommended by the Federal Trade Commission and will probably have approval of the New York Cotton Exchange, he said.

Mr. Clayton thought the cotton trade in the South would first have to come to an agreement before the New York Cotton Exchange would act.

"Experience of years has demonstarted that it is rarely profitable to take cotton to New York in any quantity except to prevent a squeeze or corner," he declared.

The convention futures committee recommended that the bureau of markets of the United States department of agricuture be requested to construe the Smith-Lever bill so as to make tenderable strict low middling spotted cotton and 12 other grades of cotton against future contracts.

It was also requested that the New York and New Orleans exchanges be petitioned to institute a control commission to function the same as the central control committees existing in the New York Stock Exchange, the Chicago Board of Trade, and in the sugar and coffee exchanges of New York.

The objects of the Association outlined by President Frank Inman, of Georgia, for the promotion of fair laws, both State and National, fair rules and practices and the national handling of cotton along lines that will prove most beneficial to both produced and consumer.

The keynote of the comment on cotton goods conditions was sounded in an appeal by members for more extensive advertising of cotton goods. It was pointed out that manufacturers of silks, linens, woolens and other fabrics kept their products constantly before the public in every sort of advertising media. President Inman thought the cotton manufacturer should equally resort to advertising.

An important resolution adopted by the convention provides for creation of an arbitration board and an appeal board to handle questions arising between the association and the American Cotton Manufacturers Association.

Labor Called Best Mill Asset

El Paso, Texas—Highly efficient and economical labor supply is the best asset of the textile mill, J. Paul Henderson, vice-president and manager of the El Paso Cotton Mill Co., told the local chapter, American Association of Engineers.

It was the principal factor, he said, which enabled the local mill to market $400,000 worth of cloth the first year. While training operatives, only trained overseers were brought in. During the first 15 months the mill sold $515,000 worth of cloth, more than the original capitalization.

"This modest marketing record was built up from the word 'Go,' he said, " in spite of six months of the worst textile market I ever saw. This market has been due to a large number of mills in the country liquidating.

"The average price of cotton for 10 years has been 25 cents, and for 100 years, 16 cents. Those who predict 10 and 12-cent cotton in the future have no basis for it in the immediate past.'" '

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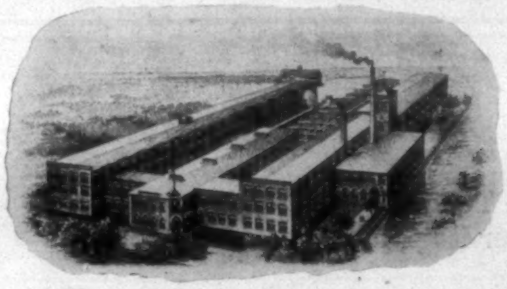

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"Shiners" in Rayon-Filled Facric

(Continued from Page 12)

ing stick with paraffine, as it not only smoothes it, but a light paraffining is conveyed to the threads of the skein, which makes them smooth and less likely to stick and catch in the winding. The skeins should also be freely opened out, and allowed to hang in this way in as regular and open a manner as possible. Between that period and the next day, any contractions that individual threads may be subject to will have taken place, and, when the yarn comes to the winding, all of this that existed in the original skeins will have been eliminated.

The winding, warping and quilling rooms should be kept, so far as possible, free from atmospheric changes, and opening of windows should be avoided, as the moisture in the atmosphere sometimes changes rapidly, and no material is more subject to the influence of moisture than is rayon. In the winding, the tensions on the swifts should be absolutely uniform, and the swift braces should be as straight and true as possible. Any that are loose, or that curve down substantially, will certainly invite trouble. Wire, or fibre, braces should therefore be preferred. The winding of bobbins should be completed on the day that they are started, so that changes in atmosphere between one day and the next will not introduce a difference in stretch, and consequent tension, into them.

Similarly, in the warping, the warp should always be completed, if possible, the day that it is started, or there is likely to be a difference in the tensions between the bands made on one day, and the bands made on the next .

In the quilling, also, great trouble is likely to occur. It is absolutely necessary that the tension adjustments of the thread as it is quilling should be so perfectly regulated that the thread throughout the entire length of the quill be absolutely uniform in tension. Now, the quilling spindles, as a whole, may be operating in this respect with proper precision, but if some odd spindles here and there are not functioning right, the quills wound on these spindles will have in them the irregular tensions referred to, and when the thread is being wound on the part of the quill of the greatest diameter, it will be under more tension than when wound on the part of the quill with the least diameter. This is the cause of much of the trouble from "shiners." On examination of the cloth at places where these defects occur, it will usulaly be found that the shiny threads are in coincidence with this, and a measurement of the shiny parts of these threads will disclose the fact that the length for which they extend corresponds closely with the distance that they would travel from the greater diameter at the top of the quill, down to about the middle of their travel towards the smaller diameter at the nose. One or two spindles on a frame working in this faulty manner will produce a good many quills, and these quills, scattered at random through a quantity of cloth, will turn otherwise perfect pieces of goods into "seconds."

Manufacturers will do well to bear all these various points in mind, and, by careful attention to the matters explained herein, they should be able in a great measure to keep their goods free of this trouble.—Textile American.

The Cotton Situation

THE following review of the cotton situation is from Hicks & Co., New York.

Although the great size of this cotton crop has never ceased to be the leading topic of discussion, and its aftermath—the surplus carry-over—is confidently used as an argument for still lower prices, the old crop may now safely be ignored as a live market influence.

The full weight of the big addition to the supply practically spent itself by the end of October, when January delivery sold as low as 18.11. Since then, old crop prices have been two cents higher, but have never gone back to the low level of October—except for July, which is really a connecting link between the old and new crops. During the intervening period of five months, predictions of fifteen cents were unceasing and Farmers Co-operative Associations were repeatedly reported on the verge of forced liquidations. Now that April is at hand and banks have laid their plans for financing the new crop, they find themselves with large surplus funds, on which they must earn interest. And in banking there is no more desirable collateral than cotton, because of its imperishability, and the quickness with which the lender can realize on his loans.

Cotton Goods Past and Future.

In the textile industry it is gratifying to note that lingering after-effects of the War have been practically cleared away. Within the past six months, Lancashire has made a radical reduction in the capitalization of cotton mills, many of which had increased their spindleage, under pressure of war demands, at a cost per spindle three or four times as great as in peace time. Besides, there was far more producing capacity than any norcal demand could absorb. So that general short time, as well as complete abandonment of obsolete plants, became imperative.

In a lesser degree, a similar condition existed in this country, and some New England properties were either abandoned, or machinery transferred to the South. Those that remain are happily now enjoying real prosperity for the first time in several years.

While cotton manufacturers generally, and yarn spinners in particular, find business dull, their complaints are mainly against the modern hand-to-mouth policy of the retailer, and the consequent absence of forward orders on their books for delivery months ahead. Meanwhile, they apparently have enough current business to keep their plants working on almost full time, and the only curtailment heard of is the sensible plan of meeting hand-to-mouth orders by producing only enough goods to meet the steady demand. No stocks are being accumulated in mill warehouses, and, should anything occur to bring in orders for delivery long ahead, there would be disclosed something like a vacuum in manufactured goods, a realization which would be promptly reflected in a wild scramble for goods and big advance in prices.

Distribution and Carry-Over.

A somewhat similar situation exists under the surface of the cotton market. Since mid-November, foreign countries have been letting the farmer carry the load. Exports, which were 450,000 bales ahead of last year, have since dropped to 500,000 below. This means that, within the past 4½ months, foreign spinners have reduced their takings by 950,000 bales. Yet everybody is aware that they are consuming our cotton at fully as rapid a rate as a year ago, hence they must soon begin to replenish their depleted stocks. This consistency policy of letting the producer hold the bag invites disaster to the spinner, should the crop now being planted fail to realize present extravagant hopes. Europe apparently aims to hold the smallest end-season stocks in years and to let America carry something like 3½ million bales on this side of the water.

While such figures are very impressive, they will not stand analysis. Everybody is aware of the large amount of untenderable grades, but few are in a position to measure the amount of cotton which will never pass through a spindle and must find some other outlet. Thirty years ago, the famous French wit, who called himself Max O'Rell, described the United States as "a great nation of sixty millions of people—mostly Colonels." Where he to describe our carry-over he might say it "mostly dogtails."

Higher Commodity Prices Indicated

A strong case for higher commodity prices is made by the noted economist, Arthur Richmond Marsh, in his recent comparison between wages and commodities. He points out that wages are 2¼ times as high as before the War, while commodities have advanced only ¼, and as it is generally conceded that the present wage level is to stay, commodities must in the nature of things advance.

In a recent discussion on the future of the textile industry, a manufacturer insisted that prices of raw cotton must come down, because his goods, a highly competitive staple line, were difficult to sell at prices then prevailing. He argued that mill wages are high and refuse to be reduced, that machinery costs twice as much as before the War, and there is no chance to get it cheaper. So, he argued, the only way to reduce the cost of cloth is to cut the cost of cotton. Somehow it seemed to escape him that the item of wages in mill production and in the cost of machinery, is no different from that in the cost of raw cotton; for nowhere does labor cut a larger figure than in raising a cotton crop; and once let the world realize that the farmer is a larborer and entitled to a fair wage, then the whole theory of cheaper cotton must fall and the question of value be measured by the fundamentals of cost of production, the same as in manufactured goods and the machinery which turns out.

It should not be overlooked that prices for new crops are now 7 to 8 cents lower than at this time during the past two years. We will not compare 17½ cents now with 35 cents in January 1924, but it is easy to imagine how much more clothing can be bought by the teeming millions of Asia, at the present low cost of goods, and what a great need for them must exist after the privations of a succession of high-priced years. Added to this picture is the knowledge that these many millions are enjoying far better wages than they ever knew before.

Nature's Part in Crop-Making.

But after all other arguments are exhausted, the time-honored weather problem looms up as the most important. Nature's forces work on such a grand scale that they defy all attempts at prophecy. Witness the cut of a full million bales in the Central and South Texas yield in the past year, yet, at the same time, two bales made against one in the Mississippi Valley States. The latter phenomenon is proving a boomerang to preparations for the new crop. Not since 1911 has the spectacle been witnessed in February, of picking cotton in one field and plowing in the adjoining one. Manifestly land preparations was impossible under such abnormal conditions, and the Mississippi Valley States are consequently reported to be 30 to 60 days behind in their field work.

Spring has been very backward so far, and cold, wet soil makes a poor bed for the best of seed. Unless all reports are misleading, the supply of good seed is unusually small, and this may play an important part should much replanting be necessary.

Short Memories.

For months past the public—in and out of the cotton trade—has been persistently impressed with the large surplus of cotton in producing countries, and lately with predictions of enormous new acreage and another record yield.

The speculative mind works in peculiar ways. Three years ago, the world was in a state of fright over the ravages of the bol weevil, and there were grave doubts that the United States would ever be able to gather a full crop again. Under that impulse, the cotton trade made heavy contributions to the fund then collected for fighting the weevil. All this seems to be forgotten, and just because two good crops have since been made, it is now confidently predicted that another bumper one is sure this year.

Certainly, the cotton trader has a short memory!

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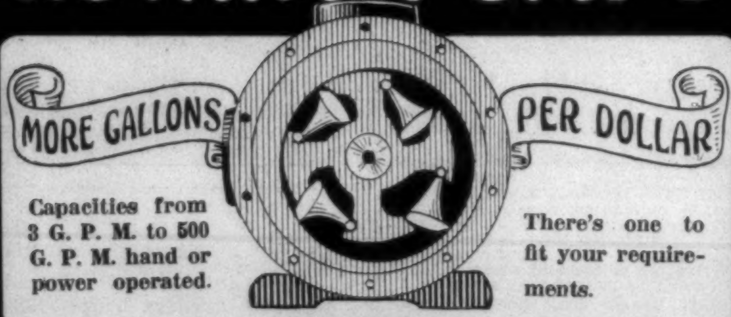

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Manufacture of Fancy Goods—4

(Continued from Page 14)

ber of patterns to be warped in each section is ascertained by dividing the width of the warp in the loom, which in this case is 33 inches by the width of the sections and this width is usually determined according to conditions. The process of calculation involves first, ascertaining how many patterns are needed to give the prescribed width of warp; second, dividing the total number of patterns by the number of sections required to fit the beam on which the warp is to be wound; and third, evening up of the layout.

If the numbers do not come out even, the layout of the sections may have to be altered to receive a few patterns or lose a few. A larger or smaller number of patterns can be disposed off by adding an extra pattern to each section or taking one away.

Beaming.

The beaming of the multiple colored warp for weaving fancy fabrics differs but little from the beaming of the plain warp.

Uniformity of tension and regularity of placement are important in both instances, although they should be stressed a little in the making of warps for the finer grades of fancy cloths. Beaming that might pass with the coarser goods will not do for finer goods, If the latter contains woven pattern effects, for the reason that certain threads composing the pattern may rise and fall more frequently than others and therefore take up more in weaving and tighten and break.

This difference in tension often makes it necessary to warp those threads, which are the more frequently interlaced with the filling, on a separate beam, where the friction weights or let-off can be regulated for these particular threads. In this case the loom has to be equipped with two-beam bearings.

Future of Indian Cloth Markets

THAT this market is steadily recovering from the debacle of 1920 there can be no doubt. The following are the figures of packages of piece goods imported into Bombay during the past five years:

1921	65,071
1922	165,197
1923	161,156
1924	209,865
1925	214,607

The cautious attitude adopted here by traders since 1920 has caused the consequences of the past few months to have been less severe than would otherwise have been the case. The desire on the part of merchants to nurse their dealers has led to their taking most of the risks themselves, with the result that the recent losses have fallen with less severity than usual on the bazaar. Although dealers are gloomy in their outlook, and still talk of losses, they have not lost all their capital, as many have done in Karachi, Delhi, and Amritzar. A moderately progressive policy is, therefore, still possible in this market, and, provided current business enables dealers to make some profits, normal conditions should be speedily restored.

Here, perhaps more than in any other Indian market, there is a disposition to regard the future of the Lancashire trade as dependent on better class goods. The grey shirting trade, which used to be our staple export to Bombay, has been well-nigh obliterated; the yarn yarn trade has sunk to insignificant proportions. That the former of these trades will return to us except in spasmodic bursts even the most optimistic refuse to believe. We have, therefore, to concentrate our attention on retaining the trade in bleached and printed goods which still remains to us, and on creating a demand for better class goods in which others will find it difficult to compete.

The considerable influx of dyed and fancy goods, as shown by the returns of the past few years, is apt to mislead one as to the taste of the Bombay people. A great proportion of these goods is imported by native firms to be sent straight to their branches in up-country centres, and constitute a fair proportion of the goods sen in the Delhi and Amritsar markets. The Bombay bazaar does not, therefore, reveal such a variety of these goods as might be expected from the figures. All the same, there are quite sufficient to show that dyed brocades, poplins, artificial silk, and sateens are regularly in use by a certain section of the people in and about Bombay, and that the popularity of these goods is increasing.

The staple clothing of the poorest people in this part of India is grey cloth woven in the local mills or imported from Japan. There are a fair number of country-made dhooties being worn, but there is no general import trade in these goods. On the whole, therefore, it may be said that we do not supply the wants of the poorest classes; whether their tastes will ever me converted to staple English dhooties seems doubtful, because they have the local industry in their midst. Bleached dhooties are a fairly important item on the import list, but they are only worn by well-to-do people. However, this trade shows signs of expanding, and manufacturers in Lancashire could do a great deal to stimulate it if they would take a little more trouble about the colors and weaving of the delicate borders required. Bleached dhooties are very expensive, and, the borders being the most important part, the price will not be paid unless the work is first-class.

Probably our most staple trade at present is in prints and turkey reds. The former continue to pass well, jeans and red grounds being the most prominent. Taste in printed goods is fearfully conservative, and nearly every importing firm works the same styles. A few high-class prints are passing, but they are mostly confined to sateens, printed and imported by one house. Single bordered gagras are in fair demand, some of them quite high-class ggoods. All these are well-established styles, and there seems to be no new taste in printed cloths. In plain reds the position has been undermined by the dyeing of coun-

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try-made cloth. This development will seriously affect the low qualities, but the better turkey-red goods are still being imported in quantity and should continue to be so. Red as a color, both by itself and in combination with others, is just as popular as ever.

So severe has been the Japanese competition in grey cloth that the local mills have experienced a most depressing year. Dividends in many instances have been passed altogether, and in others are being paid out of reserves accumulated during the boom period. While such competion between the Indian and Japanese mills continues there is certainly no chance for English goods of the same type. So far as one can learn, the recent remission of the excise duty is not likely to be sufficient to place the Indian mills on a footing of equality with the Japanese. Consequently, the plea for some form of protection is frequently heard. There are, however, many difficulties in the way of any such measure. In the first place, it would mean a reversal of the existing arrangements with Japan and the upsetting of the present friendly relations. In the second place, it would expose India to retailiatory measures against her exports to Japan, and, finally, it would raise the price of staple clothing for millions of consumers.

After visiting all markets, the following are the conclusions arrived at: India in the past has always been regarded primarily yas a market for staples; this is still true, but, so far as English textiles are concerned, to a much smaller extent than formerly. Prosperity and education are rapidly growing; with education comes indiviruality, and dress is one of the forms in which individuality is expressed. Moreover, the poorest and less educated masses are being clothed locally; the wearers of English cloth are, therefore, on the whole the more prosperous and individualistic class.

Lancashire has still one staple trade—dhooties. Even in these goods the demand is centering more and more on specialities, such as dobby borders, artificial silk borders, and even real silk borders. White yarn and fine yarn cloths are becoming more and more popular, whereas the old-fashioned cheap grey dhootie in plain borders is dropping out. Our ability to retain this vast trade depends on our manufacturers keeping pace with fashion; more and more dobby looms will be required, and the sooner our Blackburn manufacturers install them the better for themselves and Lancashire. There should be a limitless demand for dhooties provided they can be produced for reasonably quick shipments. All kinds of fancy borders are becoming popular, and those progressive manufacturers who experimented in silk and artificial silk dobbies seem sure of a reward.

The trade in bleached goods has hitherto been subject to little or no competition, and there is little to be said until such competition comes. That the trade is capable of large expansion there can be no doubt. The Punjab alone should be capable of taking twice as much as at present. At the moment it is believed that price alone prevents a very much larger consumption of English bleached cloth. Country-made grey cloth goes so white after one or two washings that it seems extraordinary for any but rich people to pay extra for the bleached article. The class of bleached goods in which there seems most likelihood of being immediate expansion is the mull. The wearing of mulls for turbans is becoming a recognized sign of prosperity among the humble classes.

In prints the future looks very uncertain. The bulk of the trade at present is in such thoroughly low-class goods that foreign printers with little experience can do the work; moreover, a lot of the work done by English printers has been bad and the prices high. The Japanese and Continental competittion in cheap prints is becoming much more severe. Realizing this, it should be the aim of the English printers to interest Indian consumers in better class stuff, produced at a pric esufficiently reasonable to be within their reach. As for the old styles, good work and cheaper prices will help us to retain this trade. The future, however, probably depends on better qualities. Our printers look like having a difficult time to retain the Indian trade; it will call for all their energy and resource.

The demand for dyed goods seems almost certain to expand. The increasing prosperity is producing more demand for goods of a decorative nature both for furnishing and apparel. Artificial silks and cotton brocades are both popular for wearing, while poplins, sateens, and shadow stripe cloths are used instead of cheaper cloth for hangings.

The unlimited scope offered by artificial silks for dyeing is in itself sufficient to assure a vast increase in the consumption of dyed goods. The possibility of artificial silk for sarries and other forms of women's dress is only beginning to be realized . English firms have not paid half enough attention to dyed artificial silks. There is no trade in India better worth their while.

The essentials for the future of English cotton textiles in India would, therefore, appear to be: (a) More dobby looms for dhooties; (b) lower prices for whites; (c) the education of taste for better class prints; (d) a special effort for the dyed artificial silk trade. — Manchester Guardian.

Annex to Textile Hall

Greenville, S. C. — A one-story steel frame annex, measuring 48 by 144 feet, to be used during the biennial Southern Textile Exposition here November 1-6, will be erected to the Textile Hall. Contract for the work was awarded to the Truscon Steel company, represented locally by Greenville Steel & Foundry company.

The building will be removed when the exposition ends.

Plans for the 1926 exposition are rapidly taking shape, practically all floor space being taken already, W. G. Sirrine, president of the exposition, said.

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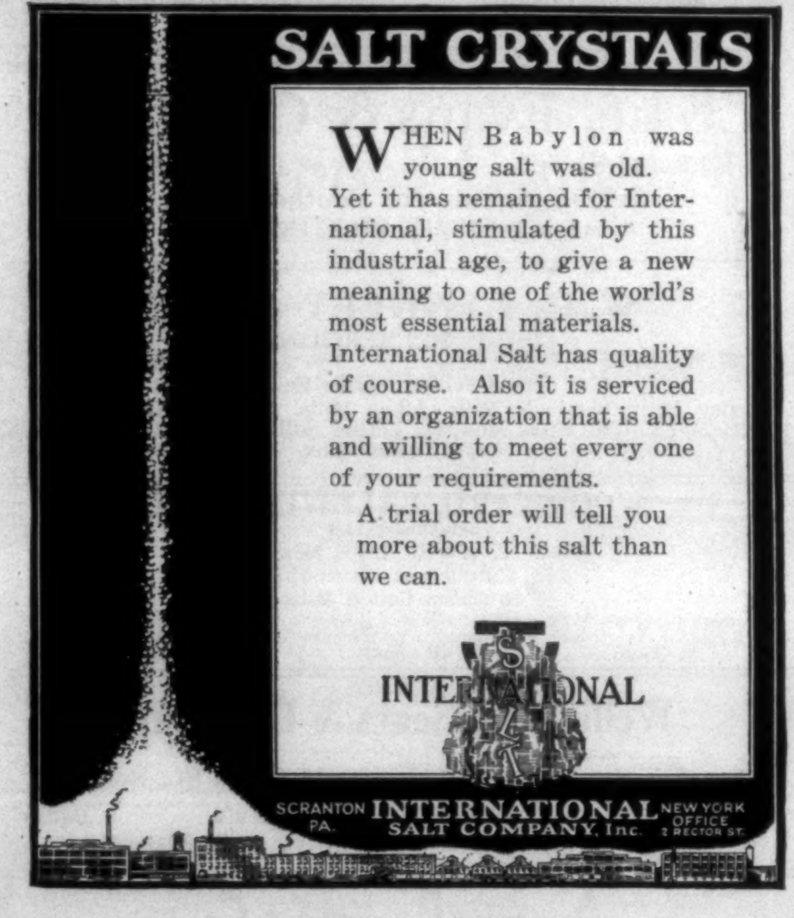

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Grey Goods, Print Cloths, Twills, Sheetings, Pajama Checks, Arcadia Mills, Spartanburg, S. C., Clinton Cotton Mills, Clinton, S. C., Hermitage Cotton Mills, Camden, S. C., Mills Mill, Greenville, S. C., Osage Mfg. Co., Bessemer City ,N. C.

Cotton Goods

New York. — Trading in cotton goods continued rather light througout the week. The movement of goods already under order was fairly large but the volume of business is not sufficient to replace orders now being filled. There was continued talk of curtailment among the mills and selling agents and market factors seemed agreed that it would be exceedingly unwise to accumulate stocks under present conditions.

At prices being offered now, the margin of profit on print cloths, sheetings and convertibles is too low to allow mills to accept offers made for future deliveries.

Sales of rayon mixed goods continued active, although in some lines orders are not coming in fast enough to prevent an accumulation. Colored cotton goods have been moderately well sold ahead. Sales of bleached goods, sheets and pillow cases were mainly of a filling in character, with little interest in future deliveries.

Ducks, tire fabrics and other heavy cottons moved slowly and very low prices were named on spot lots. Denims were irregular, with prices in favor of the buyers.

In print cloths a further demand for July-September 64x60s found business done at 7½ cents. During the latter part of the week the total of yardage sold for the period at the price was close to 2,000,000 yards, so reports indicated. May 66x72s sold at 8¾ cents. Small lots of 6.60-yard were taken at 6⅝ cents. Spots of 64x60s sold at 7¾ cents and 68x72s at 8⅞ cents. Further small quantities of 60x48s were sold at 6⅝ cents; 7.15-yard, 6 cents; 7.20-yard, 5¼ cents; 6.40 yard, 6¾ cents.

Sheetings had no special call, various quarters finding business of little importance. A substantial lot of standard 6.15-yard sold through June at 6 cents. First hands disposed of some 36-inch 5.00-yard at 7⅝ cents, with second hands moving a few lots at 7½ cents. Late April 56x60, 4.00-yard sold at 9½ cents. A few 4.70-yard were taken at 8 cents; 36-inch 5.50-yard at 6¾ cents. There do not appear to be many of the last on the spot.

Fairly important business was done in last half of the year 72x80s pajama checks at 9½ cents. Spot 64x60s sold again at 7⅝ cents. Late contract 38 squares were reported sold at 11½ cents, the last price being 11¾ cents. Eastern 4.37-yard sateens sold at 11¾ cents, and 48 square 5.10-yard twills at 9⅜ cents. Small lots of tobacco cloths were taken at lower prices than ruled early in the week.

In some quarters of the heavy goods market a fair number of small orders were placed during the week. Enameling duck figured in the business at between 38 cents and 43 cents a pound. Army duck is being sold at 41 cents or quoted 45 and 5 and 50 and 5 off. Numbered ducks continue quite at 47½ and 5 to 50 and 5 off.

A number of specialty fine goods sold during the week. The total of this business was not important and little of it was on contract. The disposition was to pick up spots of wanted goods, whenever possible. No price changes were reported in any of the staple constructions.

Very little was reported doing in warp stripe sateens. Carded 88x48s held at 9⅞ cents and 9¾ cents; 110x68s, 14½ cents; 118x68s, 17½ cents; 140x76s, 17½ cents; 140x90s, 20 cents; 144? 88s, 20 cents to 21 cents; 168x88s, 23½ cents peelers and 25 cents pimas. Spots of the combed styles were in good demand, but were hard to find and buyers were not especially ready to pay the required premiums for them.

A quiet week prevailed in the Fall River print cloth market and sales for the periods are estimated at 50,000 pieces, which is constitutel mainly of 36-inch low counts. There has been spotty trading and while some quarters report interest in goods, others contend it is one of the quietest weeks in some time. Wide and narrow prints have been unusually quiet.

Trading has been confined to spot and nearby delivery with converters in the market only for such goods as will fill their immediate needs. Some sateen business was put through on the basis of 12 cents for 4.37 constructions, but the volume was comparatively light when compared with ordinary business. A good quantity had sold earlier in the week at 11¾ cents. Prices have shown a weakening tendency under the strain and some styles show a decline of about an eighth and the 36-inch numbers show a shade decline when compared to last week's prices.

Cotton goods prices were quoted as follows:

Print cloths, 28-in., 64x64s	6
Print cloths, 28-in., 64x60s	5⅝
Print cloths, 27-in., 65x60s	5½
Gray g'ds. 38½-in., 64x64s	8¼
Gray goods, 39-in., 68x72s	8⅞
Gray goods, 39-in., 80x80s	11¼
Brown sheetings, 3-yard	12½
Brown sheetings, 4-yard	10¾
Brown sheetings, stand.	13½
Ticking, 8-oz.	22
Denims	17½
Staple ginghams, 27-in.	9
Kid finished cambrics	8½ a9½
Dress ginghams	12½a16½
Standard prints	9½

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The Yarn Market

Philadelphia, Pa.—There was very little change in the yarn market during the week. Consumers continued to show a marked lack of interest in yarn prices and restricted their orders to small lots for filling-in prposes. At times, a fair inquiry for future deliveries was reported, but the prices offered were too low to result in any business of importance. Reports indicate that spinners have refused considerable business offered them at very low prices and that many of the mills still have orders on hand to keep them busy for a time.

There was a great deal of talk of curtailment, but so far the majority of carded yarn mills continue on a full time basis. Many of them have discontinued night work, and production during the week was slightly lower than during the preceding week. It is believed, however, that spinners are going to curtailment drastically rather than pile up stocks and that curtailment has not come sooner because mills had more business on hand than was generally believed.

The price situation continued very unsatisfactory and a good deal of irregularity has developed in quotations. Spinners held prices above those quoted in the larger yarn markets and their prices were virtually unchanged from the previous week.

Combed yarn mills reported a continuation of the dull business that has been noted for some time. The Gaston county spinners continued on a part time basis. Sales of combed yarns were limited to those made on practically a spot basis. Mercerized yarns failed to show any improvement.

Prices in this market were quoted as follows:

Southern Two-Ply Chain Warps.

8s	32 a__
10s	33 a__
12s	33½a__
16s	34 a35
20s	35½a36
24s	38 a__
26s	39 a40
30s	44½a43
40s	52 a53
40s ex.	58 a60
50s	67 a63

Southern Two-Ply Skeins.

8s	32 a__
10s	32½a__
12s	33 a__
14s	33½a__
16s	34 a35
20s	35 a35½
24s	38 a__
26s	39 a__
30s	41 a42
36s	50 a__
40s	51 a52
40s ex.	58 a60
50s	66 a67
60s	77 a__
Tinged Carpet 3 and 4-ply	26½a27
White Carpet 3 and 4-ply	31 a32

Part Insulated Waste Yarns.

6s, 1-ply	26 a__
8s 2, 3, and 4-ply	26½a__
10s, 1-ply and 3-ply	28 a__
12s, 2-ply	29 a__
16s, 2-ply	32 a__
20s, 2-ply	33 a__
26s, 2-ply	37½a38
30s, 2-ply	39 a40

Duck Yarns—3, 4 and 5-Ply.

8s	32 a__
10s	33 a__
12s	33 a__
16s	34½a35
20s	36 a__

Southern Single Chain Warps

10s	32 a__
12s	33 a__
14s	33½a__
16s	34½a35
20s	35 a36
24s	38 a__
26s	39 a__
30s	42 a43
40s	53 a__

Southern Single Skeins.

6s	31 a__
8s	31½a__
10s	32 a__
12s	32½a__
14s	33 a__
16s	34 a__
20s	35 a__
22s	36 a__
24s	38 a__
26s	39 a__
30s	42 a__

Southern Frame Cones

8s	31½a__
10s	32 a__
12s	32½a__
14s	33 a__
16s	33½a__
18s	34 a__
20s	34½a__
22s	35 a__
24s	36 a36½
26s	37 a37½
28s	39½a__
30s*	38 a38½
30s	39½a40
40s	48½a__

*Tying in.

Southern Combed Peeler Skeins, Etc.—Two-Ply.

16s	51 a__
20s	53 a__
30s	58 a__
36s	63 a__
40s	65 a67
50s	72 a67
60s	78 a80
70s	88 a90
80s	1 05a1 10

Southern Combed Peeler Cones.

10s	42 a__
12s	43 a__
14s	44 a__
16s	45 a__
18s	46 a__
20s	47 a__
22s	48 a49
24s	51 a__
26s	51½a__
28s	52 a__
30s	55 a__
32s	57 a__
34s	59 a60
36s	62 a__
28s	63 a__
40s	64 a__
50s	70 a72
60s	78 a80
70s	88 a90
80s	1 05a__

Eastern Carded Peeler Thread—Twist Skeins—Two-Ply.

20s	48 a__
22s	49 a__
24s	50 a__
30s	54 a__
36s	57 a__
40s	61 a__
45s	68 a__
50s	73 a__

Eastern Carded Cones.

10s	37 a__
12s	38 a__
14s	39 a__
20s	40 a__
22s	43 a__
26s	47 a__
28s	49 a__
30s	51 a__

Denim Mill for Mexico.

Plans are being prepared for the erection of a textile mill in the City of Ciudad Juarez, Mexico, the actual construction of which will commence in the near future, according to Vice Consul James C. Powell, Jr., Ciudad, Juarez. Orders for machinery and equipment will be placed with American concerns at an early date. The machinery to be installed includes 150 looms for the manufacture of denim cloth with the necessary operating equipment. The mill, representing a total expenditure of 125,000 pesos (present value of the peso is $0.48), will be ready for operaiton on or about the first of May,

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Want Department

John Crayton

Has an important message at the office of the Bulletin. If anyone knows Mr. Crayton's whereabouts kindly communicate with us. He works in card room and was last seen in Durham, N. C.

Position Wanted

As superintendent of small mill or assistant superintendent of large mill. Experience extends over a number of years and can furnish best of references as to character and ability. If you have opening or are considering a change let me talk with you. Address W. O. E., care Bulletin.

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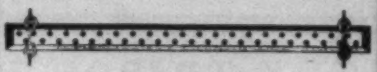

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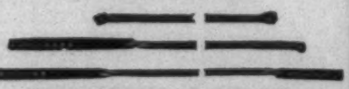

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WANT position as superintendent of yarn mill. Am now overseer of cardind and have had long and practical experience. Good references. No. 4820.

WANT position as overseer carding or spinning, prefer spinning. Practical carder and spinner who can get results. Excellent references. No. 4821.

WANT position as superintendent of small mill or overseer weaving in large mill, or assistant superintendent. Experxienced on wide variety of weaves, can get production at right cost. References. No. 4822.

WANT position as superintendent, would take large weave room. Age 48, long service as both superintendent and overseer. Now employed and can give good references. No. 4823.

WANT position as overseer carding. Age 32, single, good habits. I. C. S. graduate in carding and spinning. Would like job in Texas. Now employed. Best of references. No. 4824

WANT position as superintendent of weave mill, or would consider large weave room job Have been on present job as overseer weaving for 7 years. Good references. No. 4825.

WANT position as overseer carding. Long experience as second hand and overseer. Now employed as overseer and giving satisfaction, but want larger place. References. No. 4826.

WANT position in mill office as paymaster, shipping clerk or timekeeper. Beginner in accountancy. Seven years experience. Age 26, married, now employed. No. 4827.

WANT position as overseer weaving on jacquard, plain work or drills. Have had 6 years experience on plain goods and drills, 10 years on jacquard damask and fancy rayon draperies. Now employed. Best of references. No. 4828.

WANT position as superintendent or manager. Practical man who has been superintendent for long period of years and can give satisfactory references to show excellent past record. No. 4829.

WANT position as overseer weaving, plain or fancy work. Fifteen years experience as overseer and can give excellent references. No. 4830.

WANT position as overseer carding. Now employed. Have had ten years experience as carder. Good references. No. 4831.

WANT position as second hand or overseer carding. Age 34, 20 years in card room. Have taken course in textile and have excellent references. No. 4832.

WANT position as overseer carding or spinning. Long experience in both rooms and can give satisfactory results. Can furnish references to show character and ability. No. 4833.

WANT position as overseer spinning, spooling and warping. I. C. S. gradurate, 12 years experience. Age 39. Now employed but can change on short notice. No. 4835.

WANT position as overseer carding. Now employed as carder but wish larger place. Can handle carding or spinning or both. Have been in mill almost all my life. Twelve years as overseer. Also had long experience as overhauler. Good references. No. 4836.

WANT position as overseer cloth room. Now employed as night overseer in napping and finishing room; 12 years experience, including work on sheetings, print cloths, folding and winding. Understand upkeep of napper machines. Want day job. No. 4837.

WANT position as superintendent of yarn mill. Am practical spinner and familiar with all counts and cotton. Now employed as superintendent and giving satisfaction. Would take spinners' place in large mill. Good references. No. 4838.

WANT position as shipping or supply clerk, timekeeper or general office man. Experienced in this work and also familiar with weave room, cloth room and machine shop. Have worked in both white and colored weave mills and in yarn mills. Good references. No. 4840.

WANT position as superintendent. Am textile graduate of N. C. State College and have been superintendent of a good mill for the past 6 years. Best of references. No. 4841.

WANT position as superintendent or assistant superintendent, or overseer fancy weaving. Long experience, can get results and can keep down costs and seconds. No. 4842.

WANT position as assistant superintendent, overseer weaving or designer. Thoroughly familiar with fine and fancy weaving and can give references to show caracter and ability. No. 4843.

WANT position as superintendent. Now employed as superintendent, but wish larger place. My experience includes long service as superintendent and overseer. Best of references. No. 4844.

WANT position as superintendent of weave mill on plain or fancy work or would take large weave room. My experience covers wide variety of weaves and I can produce excellent results at the right price. No. 4845.

WANT position as overseer small card room or second hand in larger room. Have had 27 years experience in card room; 9 years as section man, and second hand. On present job as second hand for 2 years. Age 45, married, sober. Good references. No. 4846.

WANT position as superintendent, or overseer carding and spinning. Practical man of long experience who thoroughly understands carding and spinning. Best of references. No. 4848.

WANT position as superintendent of yarn mill, or would take carding or spinning in large mill. Good carder and spinner, can manage help and can produce quality work at low cost. No. 4849.

WANT position as overseer of carding or spinning or superintendent of small yarn mill. Qualified by experience and training to handle work in competent manner. Good references. No. 4850.

WANT position as overseer weaving. Prefer Draper or Stafford looms. Have had several years experience as erecting man. Stafford Company. Familiar with dobby work. Experience covers wide range of goods. Best of references. No. 4851.

WANT position as overseer of cloth room. Experienced man who understands cloth room work and who has had long experience in a number of good mills. Excellent references. No. 4852.

WANT position as overseer carding. Age 28, 8 years experience in card room on colored work and some on hosiery I. C. S. student. Prefer North Carolina or Virginia. Good references. No. 4853.

WANT position as overseer carding in large mill. Now employed but have good reasons for changing. Age 36, married, of good habits. Good references. No. 4854.

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  - ——See Dyeing, Drying, Bleaching and Finishing.
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  - E. I. du Pont de Nemours & Co., Inc.
  - U. S. Gutta Percha Paint Co.
- **Flexible Couplings—**
  - T. B. Wood's Sons Co.
- **Floor Stands—**
  - Wood's T. B. Sons Co.
- **Fluted Rolls—**
  - Collins Bros. Machine Co.
  - Fales & Jenks Machine Co.
  - Woonsocket Machine & Press Co., Inc.
  - Whitin Machine Works.
- **Flyer Pressers and Overhaulers—**
  - Southern Spindle & Flyer Co.
  - Whitin Machine Works.
  - Woonsocket Machine & Press Co., Inc.
- **Flyers—**
  - Saco-Lowell Shops.
  - Southern Spindle & Flyer Co.
  - Whitin Machine Works.
- **Frames—**
  - Steel Heddle Mfg. Co.
- **Friction Clutches—**
  - Wood's T. B. Sons Co.
  - See Clutches.
- **Fuses —**
  - Chicago Fuse Mfg. Co.
- **Garnett Roll Grinders—**
  - B. S. Roy & Son Co.
- **Gearing (Silent Flexible)—**
  - Link-Belt Co.
- **Gears—**
  - Charles Bond Company
  - Dan Gear Co.
  - Ferguson Gear Co.
- **Gears-Silent—**
  - Charles Bond Company
  - Ferguson Gear Co.
- **Gear Makers—**
  - Charles Bond Company
  - Ferguson Gear Co.
- **Generating Sets—**
  - Fairbanks, Morse & Co.
- **Grate Bars—**
  - Thomas Grate Bar Co.
- **Grab Buckets—**
  - Link-Belt Co.

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- **Greases—**
  - N. Y. & N. J. Lubricant Co.
  - L. Sonneborn Sons, Inc.
- **Grinding and Polishing Machines—**
- **Gudgeon Rolls—**
  - Washburn.
  - Easton & Burnham Machine Co.
  - Roy, B. S. & Son Co.
- **Hangers (Ball and Socket)—**
  - Charles Bond Company
  - William Sellers & Co., Inc.
  - T. B. Wood's Sons Co.
- **Hangers (Shaft)—**
  - Charles Bond Company
  - Hyatt Roller Bearing Co.
  - William Sellers & Co., Inc.
  - Wood's T. B. & Sons Co.
- **Hardware Supplies—**
  - Textile Mill Supply Co.
- **Harness Twine—**
  - Garland Mfg. Co.
- **Harness and Frames—**
  - ——See Heddles and Frames.
- **Heddles and Frames—**
  - Garland Mfg. Co.
  - Steel Heddle Mfg. Co.
  - L. S. Watson Mfg. Co.
- **Hopper-Feed Hand Stokers—**
  - The J. H. Williams Co.
- **Hosiery Dyeing Machinery—**
  - Cocker Machinery & Foundry Co.
- **Humidifying—**
  - R. I. Humidifier and Ventilating Co.
- **Humidity Control—**
  - R. I. Humidifier and Ventilating Co.
- **Humidity and Air Conditioning Aparatus—**
  - American Moistening Co.
  - The Bahnson Co.
  - Carrier Engineering Co.
  - Parks-Cramer Co.
- **Humidity Controller—**
  - American Moistening Co.
  - The Bahnson Co.
  - Carrier Engineering Corp.
  - Parks-Cramer Co.
- **Hydro-Extractors—**
  - Tolhurst Machine Co.
- **Indigo Deing Machinery—**
  - H. W. Butterworth & Sons Co.
  - Cocker Machine & Foundry Co.
  - **Textile Finishing Machinery Co.**
- **Insurance—**
  - Liberty Mutual Insurance Co.
- **Knit Goods Finishing Machines—**
  - Kaumagraph Co.
  - Merrow Machine Co., The.
- **Knotters—**
  - Barber-Colman Co.
  - Merrow Machine Co.
- **Knitting Lubricants—**
  - National Oil Products Co.
- **Laundry Machinery—**
  - Tolhurst Machine Works.
- **Landscape Architect—**
  - E. S. Draper.
- **Leather Packings—**
  - Charles Bond Company
  - Edward R. Ladew Co.
  - E. F. Houghton & Co.
  - Graton & Knight Mfg. Co.
- **Leather Loom Pickers—**
  - Charles Bond Company
  - E. H. Jacobs Mfg. Co.
- **Leather Strapping—**
  - Charles Bond Company
  - Edward R. Ladew Co.
  - Graton & Knight Mfg. Co.
  - E. F. Houghton & Co.
- **Leather Straps—**
  - E. H. Jacobs Mfg. Co.
- **Liquid Chlorine—**
  - Arnold, Hoffman & Co., Inc.
  - Mathieson Alkali Works, Inc.
- **Looms—**
  - Crompton & Knowles Loom Works.
  - Draper Corporation.
  - Hopedale Mfg. Co.
  - Stafford Co., The.
- **Loom Beams and Heads—**
  - Frank Mossberg Corp.
  - Mossberg Pressed Steel Corp.
- **Loom Drop Wires—**
  - Crompton & Knowles Loom Works.
  - Hopedale Mfg. Co.
  - Mossberg Pressed Steel Corp.
  - Steel Heddle Mfg. Co.
  - R. I. Warp Stop Equipment Co.
- **Loom Harness—**
  - Atlanta Harness & Reed Mfg. Co.
  - Garland Mfg. Co.
  - Steel Heddle Mfg. Co.
- **Loom Pickers—**
  - Jas. H. Billington Co.
  - Charles Bond Company
  - Edward R. Ladew Co.
  - E. H. Jacobs Mfg. Co.
  - Garland Mfg. Co.
  - Graton & Knight Mfg. Co.
- **Loom Reeds—**
  - Atlanta Harness & Reed Mfg. Co.
  - Greensboro Loom Reed Co.
  - High Point Loom Reed & Harness Co.
  - Steel Heddle Mfg. Co.
- **Loom Supplies—**
  - Charles Bond Company
  - **E. H. Jacobs Mfg. Co.**
- **Lubricants—**
  - Borne, Scrymser & Co.
  - E. F. Houghton & Co.
  - N. Y. & N. J. Lubricant Co.
  - L. Sonneborn Sons, Inc.
- **Lubricators—**
  - Malcolm H. Smith Co., Inc.
- **Lug Straps—**
  - Charles Bond Company
  - E. H. Jacobs Mfg. Co.
- **Machinery Enamel—**
  - E. I. du Pont de Nemours & Co., Inc.
- **Mangles—**
  - H. W. Butterworth & Sons Co.
  - **Textile Finishing Machinery Co.**
- **Markers—**
  - Kaumagraph Co.
  - Merrow Machine Co.
- **Measuring and Folding Machines—**
  - Curtis & Marble Machine Co.
  - **Textile Finishing Machinery Co.**
- **Mercerizing Machinery—**
  - Cocker Machinery & Foundry Co.
  - H. W. Butterworth & Sons Co.
  - **Textile Finishing Machinery Co.**
- **Metal Paint—**
  - E. I. du Pont de Nemours & Co., Inc.
- **Meters—**
  - Allis-Chalmers Mfg. Co.
  - General Electric Co.
  - Westinghouse Electric & Mfg. Co.
- **Mill Architects—**
  - ——See Architects.
- **Mill Lighting—**
  - ——See Electric Lighting.
- **Mill Starches—**
  - Arnold, Hoffman & Co., Inc.
  - Jas. H. Billington Co.
  - Corn Products Refining Co.
  - Penick & Ford, Ltd.
  - Keever Starch Co.
  - Stein, Hall & Co.
- **Mill Supplies—**
  - Charles Bond Company
  - Dixon Lubricating Saddle Co.
  - E. H. Jacobs Mfg. Co.
  - Garland Mfg. Co.
  - Textile Mill Supply Co.
  - Thomas Grate Bar Co.
- **Mill White—**
  - E. I. du Pont de Nemours & Co., Inc.
- **Monosulphol Oil—**
  - National Oil Products Co.
- **Napper Clothing—**
  - Wickwire Spencer Steel Co.
- **Napper Roll Grinders—**
  - B. S. Roy & Son Co.
  - Allis-Chalmers Mfg. Co.
  - General Electric Co.
  - Westinghouse Electric & Mfg. Co.
- **Oils—**
  - Arnold, Hoffman & Co., Inc.
  - E. F. Houghton & Co.
  - A. Klipstein & Co.
  - National Oil Products Co.
  - N. Y. & N. J. Lubricant Co.
  - L. Sonneborn Sons, Inc.
  - Wolf, Jacques & Co.
- **Oil Burners—**
  - **Scott-Newman Oil Burner Co.**
- **Oils (Hyroscopic)—**
  - National Oil Products Co.
- **Oils (Rayon)—**
  - National Oil Products Co.
- **One-Piece Furnace Linings—**
  - Carolina Refractories Co.
- **Opening Machinery—**
  - H. & B. American Machine Co.
  - Saco-Lowell Shops.
  - Whitin Machine Works.
- **Overhaulers—**
  - Saco-Lowell Sohps .
- **Overseaming and Overedging Machines—**
  - Southern Spindle & Flyer Co.
- **Paints—**
  - Aluminum Co. of America.
  - Oliver Johnson & Co.
  - Tripod Paint Co.
  - U. S. Gutta Percha Paint Co.
- **Patents—**
  - Paul B. Eaton
  - Siggers & Siggers.
- **Perforated Machinery Guards—**
  - Wickwire Spencer Steel Co.
- **Perforated Metals—**
  - Wickwire Spencer Steel Co.
- **Picker Gears—**
  - Cocker Machinery & Foundry Co.
- **Pickers (Leather)—**
  - Charles Bond Company
  - Edward R. Ladew Co.
  - E. F. Houghton & Co.
  - E. H. Jacobs Mfg. Co.
  - Garland Mfg. Co.
  - Graton & Knight Mfg. Co.
- **Picker Sticks—**
  - Charles Bond Company
  - Garland Mfg. Co.
- **Piece Dyeing Machinery—**
  - H. W. Butterworth & Sons Co.
  - Cocker Machinery & Foundry Co.
  - Rodney Hunt Machine Co.
  - **Textile Finishing Machinery Co.**
- **Pipe and Fittings—**
  - Parks-Cramer Co.
- **Portable Elevators—**
  - Link-Belt Co.
- **Power Transmission Machinery—**
  - Allis-Chalmers Mfg. Co.
  - Charles Bond Company
  - Hyatt Roller Bearing Co.
  - Fafnir Bearing Co.
  - Link-Belt Co.
  - Morse Chain Co.
  - **William Sellers & Co., Inc.**
  - Wood's, T. B. Sons Co.
- **Preparatory Machinery (Cotton)—**
  - H. & B. American Machine Co.
  - Saco-Lowell Shops.
  - Whitin Machine Works.
  - Woonsocket Machine & Press Co., Inc.
- **Pickers and Lappers—**
  - Whitin Machine Works.
  - Woonsocket Machine & Press Co., Inc.
- **Pinboards—**
  - Rodney Hunt Machine Co.
  - Washburn.
- **Porcelain Guides and Parts—**
  - Rodney Hunt Machine Co.
  - Page-Madden Co., Inc.
- **Presses—**
  - Economy Baler Co.
  - Rex Engineering Co.
  - Saco-Lowell Shops.
- **Pulleys (Cast Iron)—**
  - Charles Bond Company
  - William Sellers & Co., Inc.
  - Wood's, T. B. Sons Co.
- **Pumps—**
- **Blackmer Rotary Pump Co.**
- **Pumps (Boiler Feed; also Centrifugal)—**
  - Allis-Chalmers Mfg. Co.
  - Fairbanks, Morse & Co.
  - Sydnor Pump & Well Co.
- **Presses—**
  - Collins Bros.
- **Quill Boards—**
  - Washburn.
- **Quillers—**
  - Crompton & Knowles Loom Works.
  - Universal Winding Co.
  - Whitin Machine Works.
- **Quill Cleaners—**
  - Terrell Machine Co.
- **Receptacles—**
  - Economy Baler Co.
  - Rogers Fibre Co.
- **Reels—**
  - Cocker Machinery & Foundry Co.
  - H. W. Butterworth & Sons Co.
  - Rodney Hunt Machine Co.
  - Frank Mossberg Corp.
- **Rings—**
  - Whitinsville Spinning Ring Co.
- **Ring Spinning Frames—**
  - Fales & Jenks Machine Co.
  - H. & B. American Machine Co.
  - **Textile Finishing Machinery Co.**
  - Whitin Machine Works.
  - Saco-Lowell Shops.
- **Ring Travelers—**
  - Dary Ring Traveler Co.
  - National Ring Traveler Co.
  - Victor Ring Traveler Co.
  - U. S. Ring Traveler Co.
- **Rolls—**
  - H. W. Butterworth & Sons Co.
  - Collins Bros. Machine Co.
  - Fales & Jenks Machine Co.
  - Rodney Hunt Machine Co.
  - The Whitin Machine Works.
  - Woonsocket Machine & Press Co., Inc.
  - Saco-Lowell Shops.
  - Southern Spindle & Flyer Co.
  - **Textile Finishing Machinery Co.**
- **Rolls (Metal)—**
  - Rodney Hunt Machine Co.
- **Rolls (Rubber)—**
  - Rodney Hunt Machine Co.
- **Rolls (Wood)—**
  - Rodney Hunt Machine Co.
  - Washburn.
- **Roller Bearings—**
  - Charles Bond Company
  - Fafnir Bearing Co.
  - Hyatt Roller Bearing Co.
- **Roving Cans and Boxes—**
  - Denison Mfg. Co.
  - Rogers Fibre Co.
- **Roving Machinery—**
  - Whitin Machine Works.
  - Woonsocket Machine & Press Co., Inc.
  - Saco-Lowell Shops.
- **Saddles—**
  - Dixon Lubricating Saddle Co.
- **Sanitary Equipment—**
  - Vogel Co., Joseph A.
- **Sanitary Fountains—**
  - ——See Drinking Fountains.
- **Scales—**
  - Fairbanks, Morse & Co.
- **Scallop Machines—**
  - Merrow Machine Co.
- **Scouring Powders—**
  - Bosson & Lane.
  - Ford, J. B. Co.
  - National Oil Products Co.
- **Scrubbing and Cleaning Powders—**
  - The Denison Mfg. Co.
- **Sesquicarbonate of Soda—**
  - Mathieson Alkali Works, Inc.
- **Section Beam Heads—**
  - Frank Mossberg Corp.
  - Mossberg Pressed Steel Corp
- **Selling Agents—**
  - Woodward, Baldwin & Co.
  - Deering, Milliken & Co.
  - Reeves Bros.
- **Selling Agents (Cotton Goods)—**
  - Amory, Browne & Co.
  - Curran & Barry.
  - Deering, Milliken & Co.
  - W. H. Langley & Co.
  - Leslie, Evans & Co.
  - Reeves Bros.
  - Wellington, Sears & Co.
- **Sewing Machines—**
  - Merrow Machine Co.
- **Sewing Machines and Supplies—**
  - Curtis & Marble Machine Co.
- **Shafting, Hangers, Etc.**
  - ——See Power Transmission Machinery
- **Shafting—**
  - Fafnir Bearing Co.
  - William Sellers & Co., Inc.
  - Wood's T. B. Sons Co.
- **Shear Grinders—**
  - B. S. Roy & Son Co.
- **Shell Rolls—**
  - Washburn.
- **Shell Stitch Machines—**
  - Merrow Machine Co.
- **Short Center Drives—**
  - T. B. Wood's Sons Co.
- **Shuttles—**
  - Jas. H. Billington Co.
  - David Brown Co.
  - -Lowell Shuttle Co.
  - Draper Corporation.
  - Hopedale Mfg. Co.
  - Shambow Shuttle Co.
  - L. S. Watson Mfg. Co.
  - The J. H. Williams Co.
  - U. S. Bobbin & Shuttle Co.
- **Silk Yarns (Artificial)—**
  - American Cellulose & Chemical Mfg. Co
  - Duplan Silk Corp.
  - Imperial Rayon Co.
  - Industrial Fibre Co.
- **Silent Chain Drive—**
  - Link-Belt Co.
  - Morse Chain Co.
- **Singeing Machinery—**
  - H. W. Butterworth & Sons Co.
  - **Textile Finishing Machinery Co.**
- **Sizing Machines—**
  - Charles B. Johnson
- **Sizing Starches, Gums—**
  - Arnold, Hoffman & Co., Inc.
  - Arabol Mfg. Co.
  - Hart Products Corp.
  - L. Sonneborn Sons, Inc.
  - Stein, Hall & Co.
- **Sizing Compounds—**
  - Arnold, Hoffman & Co., Inc.
  - Bosson & Lane
  - Corn Products Refining Co.
  - Drake Corp.
  - General Dyestuff Corp.
  - Hart Products Corp.
  - A. Klipstein & Co.
  - National Oil Products Co.
  - United Chemical Products Co.
  - John P. Marston & Co.
  - Seydel Chemical Co.
  - Seydel-Woolley Co.
  - L. Sonneborn Sons, Inc.
  - Wolf, Jacques & Co.
- **Slashers—**
  - Charles B. Johnson
- **Slashers Combs—**
  - Easton & Burnham Machine Co.
  - T. C. Entwistle Co.
  - Steel Heddle Mfg. Co.
  - **Textile Finishing Machinery Co.**
- **Softeners (Cotton)**
  - Arabol Mfg. Co.
  - Arnold, Hoffman & Co., Inc.
  - Bosson & Lane.
  - General Dyestuff Corp.
  - E. F. Houghton & Co.
  - National Oil Products Co., Inc.
  - Seydel Chemical Co., The.
  - L. Sonneborn Sons, Inc.
  - United Chemical Products Corp.
  - U. S. Bobbin & Shuttle Co.
  - Wolf, Jacques & Co
- **Softeners—**
  - Arnold, Hoffman & Co., Inc.
  - E. F. Houghton & Co.
  - National Oil Products Co., Inc.
  - Seydel-Woolley Co.
  - **L. Sonneborn Sons Co.**
- **Skewers—**
  - Dald Brown Co.
  - Courtney, The Dana S. Co.
  - T. C. Entwistle Co.
  - Jordan Mfg. Co.
  - Walter L. Parker Co.
  - U. S. Bobbin & Shuttle Co.
- **Slashers and Equipment—**
  - Saco-Lowell Shops.
- **Soaps—**
  - Arabol Mfg. Co.
  - Arnold, Hoffman & Co., Inc.
  - A. Klipstein & Co.
  - National Oil Products Co.
  - L. Sonneborn Sons, Inc.
  - United Chemical Products Co.
- **Soda Ash—**
  - J. B. Ford Co.
  - Mathieson Alkali Works, Inc.
- **Softeners (Oil)—**
  - Bosson & Lane.
  - E. F. Houghton & Co.
  - Hart Products Corp.
  - National Oil Products Co.
  - L. Sonneborn Sons, Inc.
- **Spindles—**
  - Collins Bros. Machine Co.
  - Draper Corporation.
  - Fales & Jenks Machine Co.
  - Saco-Lowell Shops.
  - Whitin Machine Works.
  - Southern Spindle & Flyer Co.
  - Woonsocket Machine & Press Co., Inc
- **Spindle Repairers—**
  - Collins Bros. Co.

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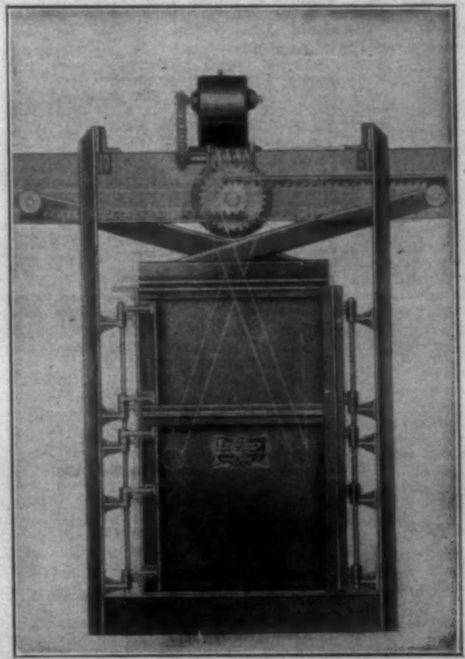
- Fournier & Lemoine.
- Fales & Jenks Machine Co.
- Southern Spindle & Flyer Co.
- **Spinning Frame Saddles—**
  - Dixon Lubricating Saddle Co.
- **Spinning Frame Top Rolls (Wood)—**
  - Washburn.
- **Spinning Rings—**
  - Collins Bros. Machine Co.
  - Draper Corporation.
  - Fales & Jenks Machine Co.
  - Saco-Lowell Shops.
  - Whitin Machine Works.
  - Whitinsville Spinning Ring Co.
- **Spools—**
  - —David Brown Co.
  - Courtney, The Dana S. Co.
  - Jordan Mfg. Co.
  - Lestershire Spool & Mfg. Co.
  - Frank Mossberg Corp.
  - Steel Heddle Mfg. Co.
  - U. S. Bobbin & Shuttle Co.
  - Walter L. Parker Co.
- **Sprockets—**
  - Cocker Machinery & Foundry Co.
- **Sprockets, Silent Chain—**
  - Link-Belt Co.
- **Spoolers—**
  - Draper Corporation.
  - Easton & Burnham Machine Co
  - Saco-Lowell Shops.
  - Whitin Machine Works.
- **Spinning Tapes—**
  - American Textile Banding Co.
  - Barber Mfg. Co.
  - Georgia Webbing & Tape Co.
- **Squeeze Rolls—**
  - H. W. Butterworth & Sons Co.
  - Rodney Hunt Machine Co.
  - **Textile Finishing Machinery Co.**
- **Starch—**
  - Arnold, Hoffman & Co., Inc.
  - Corn Products Refining Co.
  - Keever Starch Co.
  - Penick & Ford, Ltd.
  - Stein, Hall & Co.
- **Stencil Machines—**
  - A. J. Bradley Mfg. Co.
- **Stencil Papers—**
  - A. J. Bradley Mfg. Co.
- **Stripper Cards—**
  - L. S. Watson Mfg. Co.
  - Wickwire Spencer Steel Co.
- **Switch Boxes—**
  - Chicago Fuse Mfg. Co.
- **Tanks—**
  - H. W. Butterworth & Sons Co.
  - Rodney Hunt Machine Co.
  - **Textile Finishing Machinery Co.**
- **Tape—**
  - Georgia Webbing & Tape Co.
- **Temperature Regulators—**
  - **American Schaeffer & Budenberg Corp.**
- **Textile Castings—**
  - H. W. Butterworth & Sons Co.
  - Cocker Machinery & Foundry Co.
  - **Textile Finishing Machinery Co.**
- **Textile Machinery Specialties—**
  - H. W. Butterworth & Sons Co.
  - Cocker Machine & Foundry Co.
  - Rodney Hunt Machine Co.
  - Hyatt Roller Bearing Co.
  - **Textile Finishing Machinery Co.**
- **Textile Soda—**
  - J. B. Ford Co.
  - Mathieson Alkali Co.
- **Temples—**
  - Draper Corporation.
  - Hopedale Mfg. Co.
- **Textile Apparatus (Fabrics)—**
  - B. F. Perkins & Son, Inc.
  - Henry L. Scott & Co.
- **Textile Dryers—**
  - American Moistening Co.
- **Top Beams—**
  - Frank Mossberg Corp.
- **Top Rolls For Spinning Frames—**
  - Washburn.
- **Trademarking Machines—**
  - Curtis & Marble Machine Co.
- **Transfer Stamps—**
  - Kaumagraph Co.
- **Transmission Belts—**
  - Charles Bond Company
  - Edward R. Ladew Co.
  - E. F. Houghton & Co.
  - Graton & Knight Mfg. Co.
- **Transmission Machinery—**
  - Allis-Chalmers Mfg. Co.
  - Hyatt Roller Bearing Co.
  - William Sellers & Co., Inc.
  - Wood's T. B. & Sons Co.
- **Toilets—**
  - Vogel, Jos. A. Co.
- **Transmission Silent Chain—**
  - Link-Belt Co.
  - Morse Chain Co.
- **Trucks (Mill)—**
  - Rogers Fibre Co.
  - W. T. Lane & Bros.
- **Trucks For Pin Boards—**
  - Washburn.
- **Tubes (Paper)—**
  - Sonoco Products Co.
- **Turbines (Steam)—**
  - Allis-Chalmers Mfg. Co.
- **Twister Rings—**
  - Whitinsville Spinning Ring Co.
- **Twisting Machinery—**
  - Collins Bros. Machine Co.
  - Draper Corporation.
  - Fales & Jenks Machine Co.
  - Saco-Lowell Shops.
  - Whitin Machine Works.
- **Twisting Tapes—**
  - Barber Mfg. Co.
- **Underwear Machines—**
  - Merrow Machine Co.
- **Ventilating Apparatus—**
  - American Moistening Co.
  - Parks-Cramer Co.
- **Ventilating Fans—**
  - B. F. Perkins & Son., Inc.
- **Warpers—**
  - Barber-Colman Co.
  - Crompton & Knowles Loom Works
  - Draper Corporation.
  - Easton & Burnham Machine Co.
  - Saco-Lowell Shops.
  - T. C. Entwistle Co.
- **Warp Dressing—**
  - Arnold, Hoffman & Co., Inc.
  - Boson & Lane.
  - Draper Corporation.
  - Hart Products Corp.
  - E. F. Houghton & Co.
  - National Oil Products Co.
  - Seydel-Woolley Co.
  - **L. Sonneborn Sons Co.**
- **Warp Stop Motion—**
  - Draper Corp.
  - Hopedale Mfg. Co.
  - R. I. Warp Stop Equipment Co.
- **Warp Tying Machinery—**
  - Barber-Colman Co.
- **Warper Shell—**
  - Cocker Machinery & Foundry Co.
- **Warpers (Silk or Rayon)—**
  - Sipp Machine Co.
- **Washers (Fibre)—**
  - Rogers Fibre Co
- **Waste Reclaiming Machinery—**
  - Saco-Lowell Shops
  - Whitin Machine Works
  - Woonsocket Machine & Press Co. Inc
- **Waste Presses—**
  - Economy Baler Co
  - Rex Engineering Co.
- **Water Controlling Apparatus—**
  - Rodney Hunt Machine Co.
- **Water Wheels—**
  - Allis-Chalmers Mfg. Co.
- **Weighting Compounds—**
  - Arabol Mfg. Co.
  - Bosson & Lane.
  - General Dyestuff Corp.
  - Hart Products Corp.
  - Marston, Jno. P.
  - National Oil Products Co.
  - Jacques Wolf & Co.
  - Seydel-Woolley Co.
  - L. Sonneborn Sons, Inc.
- **Well Drillers—**
  - Sydnor Pump and Well Co.
- **Whizzers—**
  - Tolhurst Machine Works.
- **Winders—**
  - Easton & Burnham Machine Co.
  - Saco-Lowell Shops.
  - Universal Winding Co.
- **Winders (Skein)—**
  - Sipp Machine Co.
- **Windows—**
  - Carrier Engineering Corp.
  - Parks-Cramer Co.
- **Window Guards—**
  - Wickwire Spencer Steel Co.
- **Wire Partitions—**
- **Wrenches—**
  - Frank Mossberg Corp.
  - Wickwire Spencer Steel Co.
- **Yardage Clocks—**
  - T. C. Entwistle Co.
- **Yarns—**
  - Paulson, Linkroum & Co.
  - Mauney-Steel Co.
- **Yarn Tension Device—**
  - Eclipse Textile Devices, Inc.
- **Yarn Presses—**
  - Economy Baler Co.
- **Yarn Testing Machines—**
  - H. L. Scott & Co.

ALL STEEL ECONOMY FIRE PROOF YARN PRESS

Direct Motor Connected——Completely Inclosed Chambers

"JUST WHAT EVERY YARN MILL NEEDS"



This Economy yarn baling press is unquestionably the last word in baling press development.

Chamber completely inclosed—no openings. The chamber is made up of four sets of doors, so that the ends of the chamber open as well as the sides. The four doors, however, lock at two corners by a very simple locking device.

This new yarn press produces a bale 36" long by 24 wide, of 12 to 15 cubic feet, weighing about four hundred pounds and over making it possible to produce bales 24 to 36 inches deep, weighing from two hundred and fifty to four hundred pounds and over. Chamber five feet deep. Equipped with a directly connected electric motor capable of pulling up to 10 horse torque, alternating current 2 or 3 phase, 50 or 60 cycle, 220 or 550 volt.

The end doors as well as the sides, swing out independently, leaving all four sides of the bale exposed.

We should like very much indeed to confer with you regarding this Economy yarn press, and assure you that you would receive satisfactory service. The users of press are well satisfied with this yarn press, because it is convenient to load with great pressure and rapid in operation. Very substantially constructed.

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FIG.27

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Aluminum Mixing Varnish

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